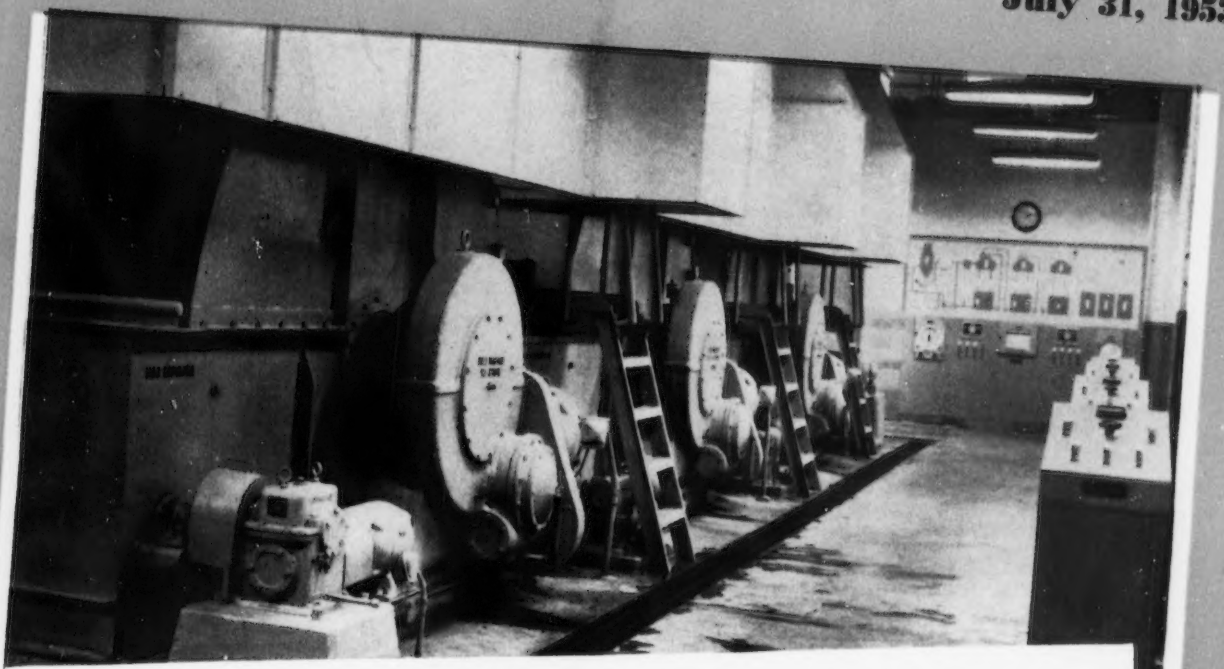
PAPER TRADE
# JOURNAL

*World's Largest Fourdrinier Board Machine . . . p. 24*

July 31, 1953



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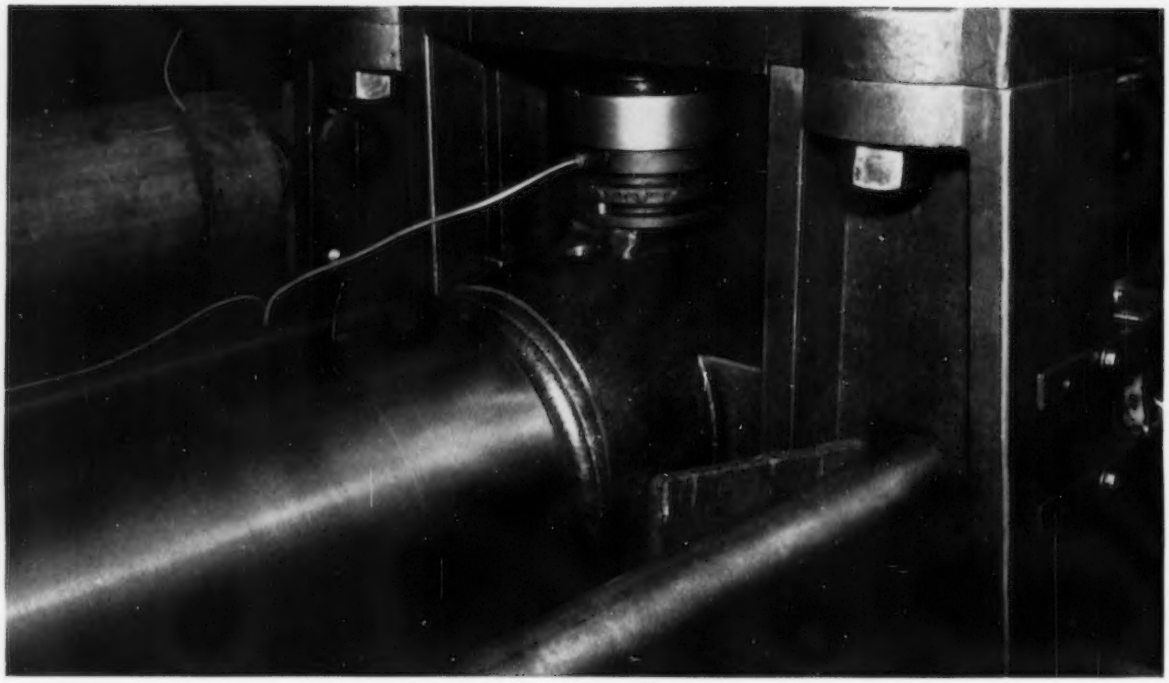
# Knowlton Brothers don't guess supercalender roll pressure!



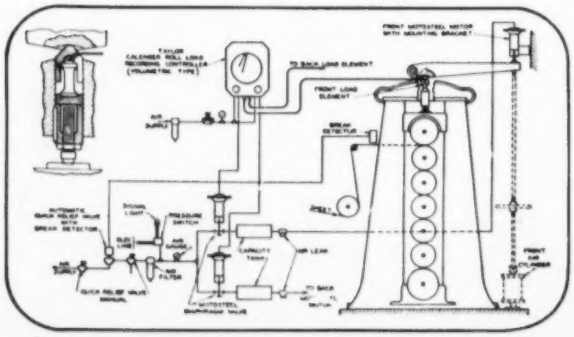
THEY don't have to adjust their supercalender roll by guess and by gosh at the Watertown, N. Y., plant of Knowlton Brothers, manufacturers of specialty papers. A Taylor Calender Roll Pressure Recorder enables the operator to easily apply any required nip pressure *uniformly across the roll*, thus insuring the exact finish required. With the roll pressure uniformly adjusted to the right value, power consumption is considerably reduced—and so is frictional wear, which means that the life of fabricated intermediate rolls is greatly prolonged.

**This fine adjustment** is made possible by Taylor's Volumetric Compression Load Elements, (*see photo above*) which are installed to measure the compressive force between the top lever and the top roll bearing each end of the roll. Consequently the *actual* load exerted on each top roll bearing by the weight and lever arrangement is measured.

**This principle of measurement is fundamentally sound** because friction at various points in the weight and lever arrangement make "blind" adjustment of the weight practically impossible.

**There are Taylor control systems** designed for every phase of paper making, from pulp grinding to calendering. For complete information call your Taylor Field Engineer, or write Taylor Instrument Companies, Rochester, N. Y., or Toronto, Canada.

*Instruments for indicating, recording and controlling temperature, pressure, flow, liquid level, speed, density, load and humidity.*



Another typical installation system, in this case for recording *and automatically controlling* supercalender roll pressure.

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ALL TYPES

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ABP


**REMEMBER THESE DATES**

*OCT. 6-7:* Fibrebox Assn., Fall Meeting, Waldorf-Astoria Hotel, New York, N.Y.

*OCT. 8-9:* TAPPI Tenth Fibrous Agricultural Residues Conference, Trenton, Ont., Canada.

*OCT. 15-16:* TAPPI Third Corrugated Containers Conference, Statler Hotel, New York, N.Y.

*OCT. 26-29:* TAPPI Engineering Division, Sheraton-Mount Royal Hotel, Montreal, Que., Canada.

*NOV. 4-5-6:* National Paperboard Assn., Annual Meeting, Waldorf-Astoria Hotel, New York, N.Y.

*NOV. 18-20:* 7th TAPPI Alkali Pulping Conference, Rice Hotel, Houston, Texas.


PAPER TRADE JOURNAL

JULY 31, 1953, *Vol. 137, No. 5*



Hoberg Changes Name To Charmin Paper Mills, Inc. ..... 9

New Australian Mill Planned ..... 9

Alaska-Juneau Mill Project Lags ..... 10

Nova Scotia May Get A New Paper Mill ..... 10

How Much Will Our Industry Grow? ..... 12

*A survey by A.P.P.A. of current expansion programs in the industry. This report presents projected production expansion in the various grades of pulp and paper up to 1955.*

Recent Developments in the Treatment of Pulp and Paper Mill Effluents ..... 16

*This English article summarizes current developments in stream pollution abatement both world wide and with special reference to latest British progress.*

A New and Valuable Aid for Foremen and Supervisors ..... 22

Continental Can's New Fourdrinier Board Machine—The World's Largest ..... 24

*Paper Trade Journal presents the first published description of this new giant at Hopewell.*

Local Meetings Calendar ..... 28

What Is The Pulp & Paper Future of Michigan's Upper Peninsula? ..... 29

The Arson Problem in Louisiana Woodlands .. 29

**DEPARTMENTS**

| | | | |
|---|---|---|---|
| Our Business | 7 | New Equipment and Supplies | 31 |
| News of the Week | 9 | New Literature | 32 |
| Paper People | 26 | News of Suppliers | 34 |
| Obituaries | 27 | Production Ratio | 36 |
| News of Associations | 28 | Materials | 36 |
| World News and Markets | 30 | Prices | 38 |
| CLASSIFIED ADVERTISING | 39 | ADVERTISERS INDEX | 52 |



**LOCKWOOD TRADE JOURNAL CO., INC., 15 W. Forty-Seventh St., N.Y. 36**

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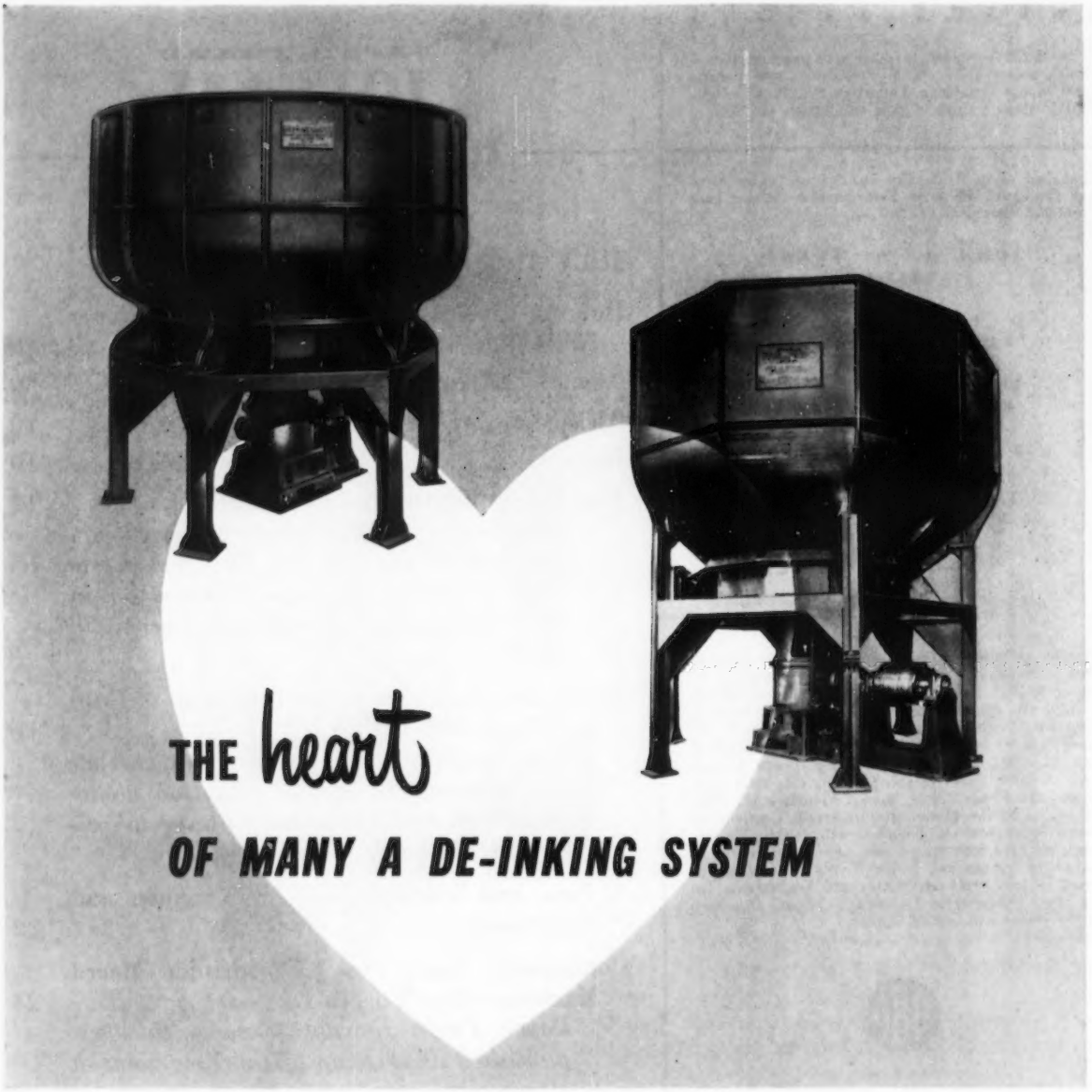


Hydrapulpers didn't win their spurs just as pulpers of stock for liner, filler and Fourdrinier grades. Scores of Hydrapulpers are highly successful performers as de-inkers, chemical and color mixers, stock blenders, and as repulpers of broke and trim.

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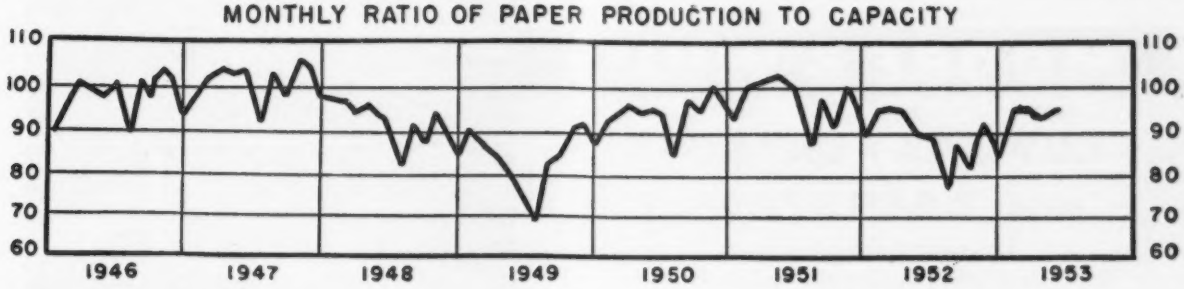
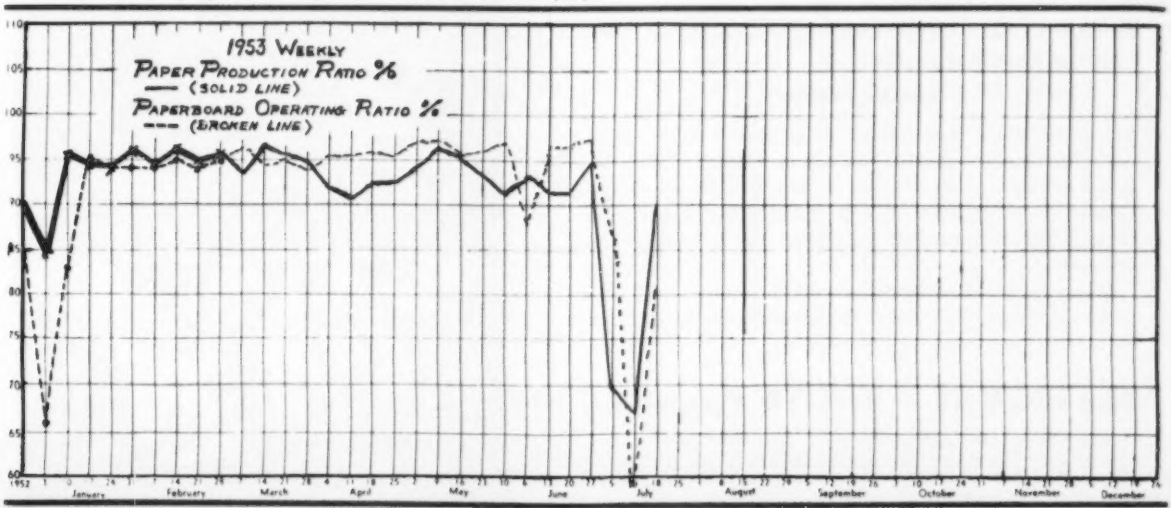
# OUR BUSINESS




## Brief of Important Figures

| Source | Production | WEEK ENDING July 18, '53 | June 20, '53 | July 19, '52 |
|---|---|---|---|---|
| APPA | Paper Production Percent Capacity[5] | 90.0 | 94.0 | 84.1 |
| NPA | Paperboard Operating Ratio Percent Inch Hours | 81 | 98 | 80 |
| | | **May. 1953** | **Apr. 1953x** | **May 1952** |
| APPA | Paper Production[6] (Except Newsprint and Building Papers) ..... Tons | 883,000 | 881,274 | 839,000 |
| | New Orders ..... Tons | 877,000 | 856,539 | 779,000 |
| | Unfilled Orders ..... Tons | 850,000 | 853,737 | 770,806 |
| | Shipments ..... Tons | 881,000 | 868,929 | 827,000 |
| | | **June 1953[1]** | **May 1953** | **June 1952** |
| NPA | Paperboard Production ..... Tons | 1,228,238 | 988,393 | 804,569 |
| | New Orders ..... Tons | 1,355,322 | 926,251 | 809,318 |
| | Unfilled Orders ..... Tons | 566,985 | 459,811 | 352,864 |
| | **Our Customers Activities Index[1]** | **Latest Mo.°** | **Previous Mo.°** | **Year Ago°** |
| FRS | Durable Mfg. Index | 321 | 325 | 278 |
| | Nondurable Mfg. Index | 200 | 196 | 180 |
| | Printing and Publishing Index | 187 | 187 | 174 |
| ODC | Magazine Advg.-Printer's Ink Index | 426 | 426 | 388 |
| | **Prices Index** | | | |
| BLS | Consumers Price Index[4] | 114.0 | 113.7 | 113.0 |
| | Wholesale all Commodities[4] | 109.8 | 109.4 | 111.6 |
| | Wholesale Pulp, Paper[4] and Allied Products | 115.4 | 115.3 | 116.9 |
| | Purchasing Power of Dollar, Consumers Prices[4] | 87.7 | 88.0 | 88.5 |
| | **General Activity Index** | | | |
| FRS | Mfg. Production-Worker Payroll[4] | 148.6 | 150.1 | 128.9 |
| | Unemployment Compensation Initial Claims (M) | 802 | 888 | 915 |




[1] New 6-7 day basis.
[4] New Index 1947–1949 = 100
[5] For Five Weeks
° For details see APPA Monthly Statistical Summary—May 1953 Estimated Figures.
° Latest Month Available on Request.
x Revised Figures N.A.: Not Available.

# NEW

# MOORE & WHITE

## CUTTERS • LAYBOYS and BACKSTANDS

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**PAPER—PAPERBOARD—PULP—and SPECIALTIES**

To measure up to today's faster production pace, our engineers have completely redesigned Moore & White Cutters, Layboys and Backstands. These precision-made machines are now much more efficient and dependable. Special attention has been paid to simplified operation—reduction of maintenance to a minimum.

### CUTTERS

These are furnished in three types: simplex, duplex and triplex. They are of multiunit design, hence any of the three types can readily be converted to any of the other types. Changes for sheet adjustment are quickly made. Fast cutting and slitting of both paper and paperboard is done with trade-custom accuracy; the trimming operation can actually be eliminated. Knife adjustment is accurately maintained. These cutters can be equipped with either standard or quick change slitters, single or duplex.

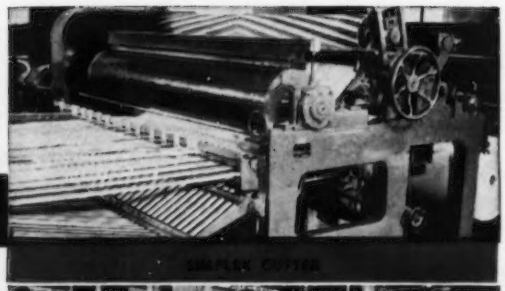
### LAYBOYS

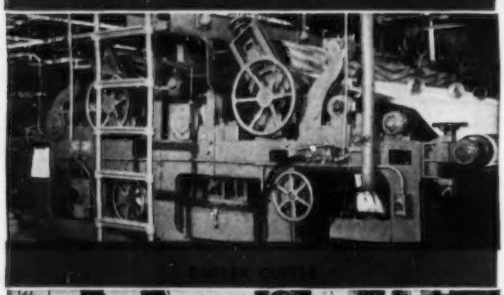
These are built simplex or duplex. They're *rugged*, and amply able to handle the maximum output of the fast new Moore & White cutters without shakes or vibration. They are simple in operation; adjustments for changes in sheet size are quickly made. Sheets are piled accurately—the duplex layboy handles two different size sheets simultaneously. Cutter-layboy assembly can be equipped with overlapping delivery system.

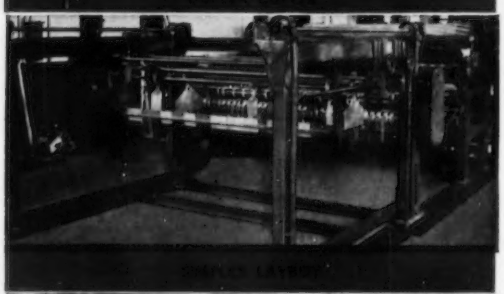
### BACKSTANDS

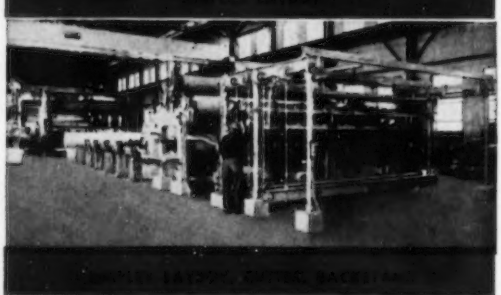
Moore & White Backstands range from 1 to 30 rolls in capacity—single, double or triple decked. They are equipped with either friction or water-cooled air brakes. Crosswise and endwise adjustment of each roll is possible. Open-sided construction facilitates quick loading and unloading.

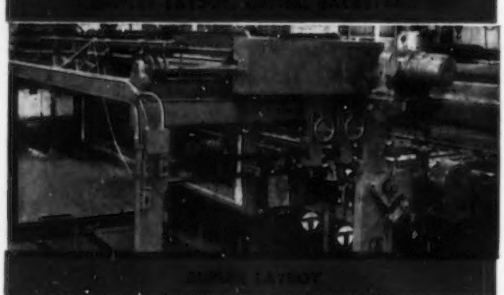
Write today for complete information on these advanced Moore & White machines. Better still, ask to have one of our sales engineers call and survey your requirements.

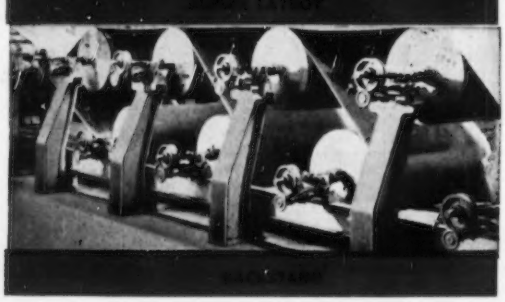












**The MOORE & WHITE Company**

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CUSTOM-BUILT MACHINES FOR MAKERS OF PAPER AND PAPERBOARD

WEEK OF PAPER TRADE JOURNAL JULY 31, 1953

## Hoberg Changes Name To Charmin Paper Mills, Inc.

The name of Hoberg Paper Mills, Inc., has been officially changed to the Charmin Paper Mills, Inc. The change was adopted in order to more closely identify the company with the Charmin and Evergreen lines of paper products manufactured by the company. There will be no change in either company policies or products.

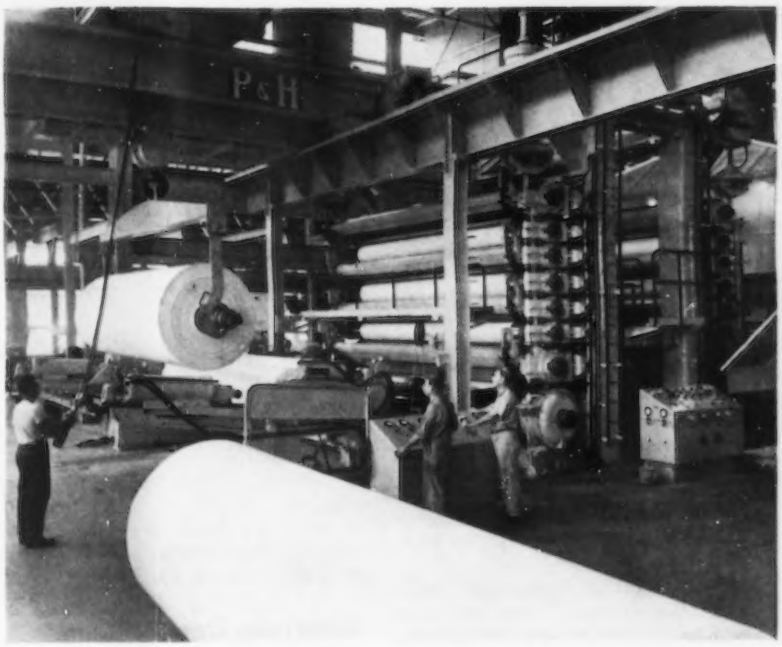
The original John Hoberg company was founded in 1892 at Kaukauna. Equipment of the original mill consisted of one 72 inch, water-powered paper machine and two converting machines.

In 1895 the firm moved to Green Bay after accepting a site on the East river offered by the Green Bay Business Men's association. The group lent financial backing and other incentives to establish the first tissue mill in Green Bay. The decision to move to this area was the forerunner of an industry that would one day make Green Bay one of the leading cities of the world in the manufacture of personal use papers. Today the firm's division A properties are on the original site along the north banks of the East river.

There were 35 persons on the payroll in 1895. Today, Charmin Paper Mills employ over 1,000 persons at its three plants—division A, which has converting facilities for all Charmin and Evergreen products plus five paper machines; division B includes the sulphite mill, laboratory and two paper machines; Little Rapids, south of West DePere, purchased to insure the firm a constant source of groundwood used in the manufacture of its papers.

The ten year period between 1932 and 1942 marked the most important milestone in the development of the company. As sales continued to climb, greater emphasis was placed on brand simplification. The firm has used the Charmin brand name for its products for the past quarter century.

Recent improvements in Charmin Paper Mills include a new powerhouse and paper machine at division A, both multimillion dollar projects and stream barking facilities at division B. The company is currently in the process of constructing a $2,500,000 torula yeast plant. The company produces 225 tons of paper daily.




**View of the dry end of the new No. 8 paper machine** recently placed in operation at the Covington, Va., plant of West Virginia Pulp and Paper Co. A description of the machine was reported in the July 10 issue of Paper Trade JOURNAL. Shown here are the dual calender stacks and the reel assemblage, along with the console control panels used to operate this equipment. A total of 350 electrical control stations are built into the machine.

## New Australian Mill Planned

Wiggins Teape and Co. Ltd., and William Nash Ltd., British paper manufacturers, will undertake a joint project to manufacture quality papers in Australia, and a mill to be known as the Shoalhaven Paper Mill is to be erected near Nowra, New South Wales. It is expected to be in operation within three years. A new company, Wiggins Teape & William Nash Pty. Ltd. is being formed, and is being assisted by Australian capital. Chairman C. N. M. Walker, of the new company, says that the mill output will be distributed through normal trade channels, but until the mill goes into production, both Wiggins Teape & William Nash papers will continue to be imported.

## No Trends This Week

Our market editor, E. P. Nuttall is on vacation and therefore there is no Trends page this week.

## New Water Wheels For Crocker-McElwain

Two new water wheels are being installed at the Crocker-McElwain Co. paper mill, Holyoke, Mass. this summer.

The wheels were made by the S. Morgan Smith Co. of York, Pa. and the installation is being done by the P. J. Kennedy Co. The over-all cost will run in excess of $100,000. The two new, modern wheels, replacing two installations made in 1910, will increase plant efficiency considerably.

While the change-over is being made, interim power service is being provided by the Municipal Gas and Electric Dept. to keep the Crocker-McElwain Co. machines operating on normal schedules.

## Alaska-Juneau Mill Project Lags

Although reported progress has been made by Alaska-Juneau Gold Mining Co. officials in interesting investment capital in the establishment of a pulp mill on its Juneau property, there is no immediate prospect of establishing this operation.

C. A Norris, company president, in a recent informal meeting with stockholders made this announcement. Last spring a plan was promoted to organize a $28 million corporation for pulp production, in which Alaska-Juneau would hold one-third of the common stock in exchange for use of its power facilities.

Several groups evinced interest in the plan but no firm commitment has been made to date, Mr. Norris revealed.

## Asks Bids on Egyptian Mill

Companies specializing in paper production have been invited to bid for the construction of a paper mill in Egypt. Offers will be received up to September 12, 1953 by the Permanent Council for Development of National Production, Chamber of Deputies Bldg., Cairo, Egypt.

A prospectus of the project issued by the Council states that such local fibers as rice straw and cotton stalks will furnish pulp for the mill. The plant must be designed for a minimum annual capacity of 20,000 metric tons of printing and writing papers and 10,000 to 15,000 tons of newsprint.

The plant must be operated by an Egyptian company which will be subject to the provisions of the Company Law as amended. A table showing availability of fiber and other raw materials can be obtained from the Council.

## Growth in Special Fiber Papers Prompts Hurlbut To Add New Machine

The Hurlbut Paper Co., South Lee, Mass. announces a long range program of research and development of special fiber papers for industry. Almost three years' intensive work has already been completed, and a progress report includes products at all stages of advancement:, in production, pilot plant, exploratory development, and visionary. In pace with these developments and the need of increased production facilities, a new fourdrinier machine is being installed and will be in operation during the third quarter of this year.

Prominent among the new papers are glass fiber papers for aerosol filtration, chemical process filtration, analytical filtration and laminates; aluminum silicate fiber papers for high heat insulation, filtration and laminates, and synthetic organic fiber papers for laminates and other uses. Machine production has been started on aerosol and high heat papers, and such papers are now being sold by Hurlbut.

## Our Slip Showed

In Dr. Von Hildebrandt's article "Removal of Cooking Liquor and Washing of Chemical Pulp by the Von Hildebrandt Continuous Process" which was published last week, we said that the black liquor delivered to the evaporators by direct cooking would total ten per cent solids by the new process. This should have been 19 per cent.

The paragraph in which the error occurred should read as follows: 6. The black liquor is never cooled down below 200° F., therefore the evaporators receive it at this temperature. The black liquor delivered to the evaporators by direct cooking, after complete washing of the pulp totals *19 per cent solids;* and by indirect cooking, after complete washing of the pulp, totals 25 per cent solids.

## American Can Building Milk Bottle Plant in Mass.

A contract for the construction of a new fibre milk container plant on a 23-acre tract in Needham, Mass., has been awarded by American Can Co. to the Turner Construction Co. The plant will be in operation by July, 1954.

The building will occupy 140,000 sq. ft., and the converting equipment will be able to turn out about 300 million units of single-service milk containers. The operation will give employment to about 200 workers.

## A Canadian Reader Objects

"I don't like this word "bender" which is creeping into U.S.A. board language. They say—board must have good "bender," or just "bender." They mean folding or bending or rather the ability to be folded or bent. I think the word *bender* is horrid."

Editor's Note: The reaction of the writer of the above letter is prompted no doubt by the fact that in Canada as here "bender" has another and better known connotation.

## Nova Scotia May Get A New Paper Mill

Timber limits have been acquired in the Mulgrave-Port Hawkesbury area of eastern Nova Scotia and the establishment of a pulpwood and possible mill operation has been discussed. The principals behind the deal are representing European interests.

Plans for a pulp and paper mill of unstated capacity have been solicited and a Montreal consulting firm has been retained to design such a plant and to assist with advice as to further plans.

It is understood, however, that the paper plant will be a secondary matter, currently only subject to discussions based upon long term studies of prices and markets likely to be available. Primary interest is in the timber operations, for which a market in the United States has been reported as under negotiations.

## Limited Production At American Tissue

The American Tissue Mills, now in the federal bankruptcy court, is operating on a limited basis with some 53 employees, according to Atty. John I. Robinson, trustee.

Atty. Robinson said that the present limited operations consist of finishing quantities of semi-finished material and selling the goods at prevailing market prices. By this action a cash reserve is being built up for the company that will reduce the indebtdness. A forced liquidation of these semi-processed goods would not bring nearly as much as their sale in the normal market.

Little hope is held for the sale of the two paper manufacturing plants in South Hadley. Trade experts say the machines cannot be made competitive.

## J. F. Auer Denies Rumors of Sale

Mamaroneck, N. Y.—Formal, categorical denial of an "unfounded report" that J. F. Auer, Inc., and Camotone, Inc., have been sold to a large southern corporation, was made recently by J. F. Auer, president and sole stockholder of both corporations.

Rumors of the sale reached Mr. Auer from several sources within two weeks and have been causing embarrassment to the corporations' customers and the management, he said. Auer-Camotone recently completed an addition to its plant and has expanded its operations in the printing and coating fields.

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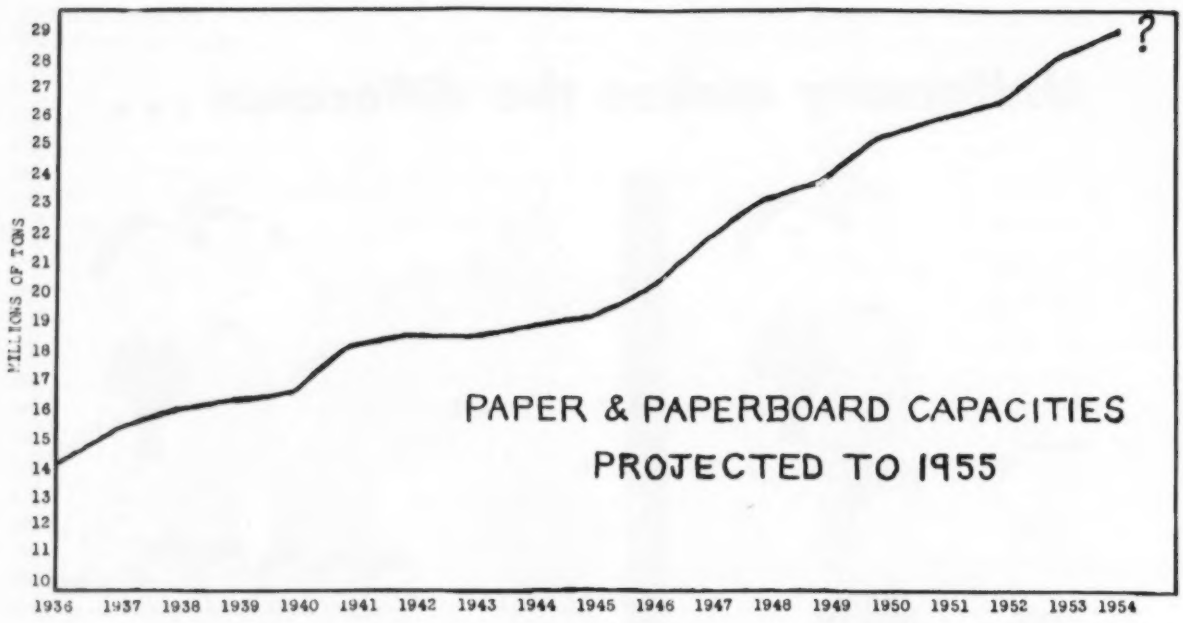



Source: American Paper and Pulp Assn.

# How Much Will Our Industry Grow?

**This valuable report by A.P.P.A. presents the projected capacity increases for our industry for the next few years.**

This survey of the pulp, paper and paperboard industry capacity at the close of 1952 and proposed additions to capacity for the years 1953 and 1954, represents the latest available data on this subject, presented by the American Paper and Pulp Assn. As in previous years, the data on capacity resulting from the addition of new paper-making machines were obtained through the cooperation of the Writing Paper Manufacturers Assn, which association annually obtains these data from manufacturers of paper-making machines. When the planned capacity reported by the machine manufacturers differed from that reported by the purchaser, however, the report of the latter was accepted.

Reported changes in capacity to produce paperboard were developed with the assistance of the National Paperboard Association, resulting in the inclusion of information not reported in the survey of this association; and data on wood pulp capacity were made available by the U. S. Pulp Producers Assn.

All paper-making capacity on an annual basis is premised on a 310 day year; wood pulp capacity is reported on the basis of normal full-time operations of the individual mill.

The details of this report are summarized in Table I.

## Paper and Board

The results of this survey indicate that the annual capacity of paper and board will increase from 26.9 million tons at the close of 1952 to 28.5 million tons at the end of 1953 and 29.3 million tons at the end of 1954. If present plans for additions to capacity in 1953 are effectuated, the increase of 1.6 million tons will be one of the largest increases ever recorded for a single year. Details of the proposed increases are shown in Tables II, III and IV.

By the end of 1954 the capacity of the paper industry as a whole will be 8.9 million tons (43.5 per cent)

**Table I Summary of Projected Pulp, Paper and Board Capacity Increases**

| | Wood Pulp (Tons) | Total Paper and Board (Tons) | Paper (Tons) | Board (Tons) |
|---|---|---|---|---|
| Estimated Capacity, | | | | |
| End of 1951 | 18,853,000 | 26,321,000 | 12,571,000 | 13,750,000 |
| End of 1952 | 19,064,000 | 26,901,000 | 12,864,000 | 14,037,000 |
| End of 1953 | 20,915,000 | 28,548,000 | 13,427,000 | 15,121,000 |
| End of 1954 | 21,518,000 | 29,308,000 | 13,729,000 | 15,579,000 |
| Percentage Increase, | | | | |
| 1952/1951 | + 1.1 | + 2.2 | + 2.3 | + 2.1 |
| 1953/1951 | +10.9 | + 8.5 | + 6.8 | +10.0 |
| 1954/1951 | +14.1 | +11.3 | + 9.2 | +13.3 |

### Table II Survey of New Paper and Paperboard Capactiy

(Annual Basis—Tons)

Capacity Increases—New and Rebuilt Machines

| Grade of Paper | Capacity at End of 1951 | Increases During 1952 | Capacity at End of 1952 | Increases During 1953 | Capacity at End of 1953 | Increases During 1954 | Capacity at End of 1954 |
|---|---|---|---|---|---|---|---|
| Fine | 1,326,000 | 39,000 | 1,365,000 | ..... | 1,365,000 | 15,000 | 1,380,000 |
| Book and Groundwood | 3,485,000 | 64,000 | 3,549,000 | 28,000 | 3,577,000 | 26,000 | 3,603,000 |
| Tissue | 1,409,000 | 35,000 | 1,444,000 | 20,000 | 1,464,000 | 34,000 | 1,498,000 |
| Wrapping and Specialties | 3,798,000 | 148,000 | 3,946,000 | 475,000 | 4,421,000 | 10,000 | 4,431,000 |
| Newsprint | 1,052,000 | 7,000 | 1,059,000 | 34,000 | 1,093,000 | 217,000 | 1,310,000 |
| Miscellaneous | 112,000 | ..... | 112,000 | 6,000 | 118,000 | ..... | 118,000 |
| Building Paper | 1,389,000 | ..... | 1,389,000 | ..... | 1,389,000 | ..... | 1,389,000 |
| Total Paper | 12,571,000 | 293,000 | 12,864,000 | 563,000 | 13,427,000 | 302,000 | 13,729,000 |
| Paperboard, including Wet Machine and Building Board | 13,750,000 | 287,000 | 14,037,000 | 1,084,000 | 15,121,000 | 458,000 | 15,579,000 |
| Total Paper and Board | 26,321,000 | 580,000 | 26,901,000 | 1,647,000 | 28,548,000 | 769,000 | 29,308,000 |

### Table III Survey of New Paper and Paperboard Capacity —1952, 1953 and 1954

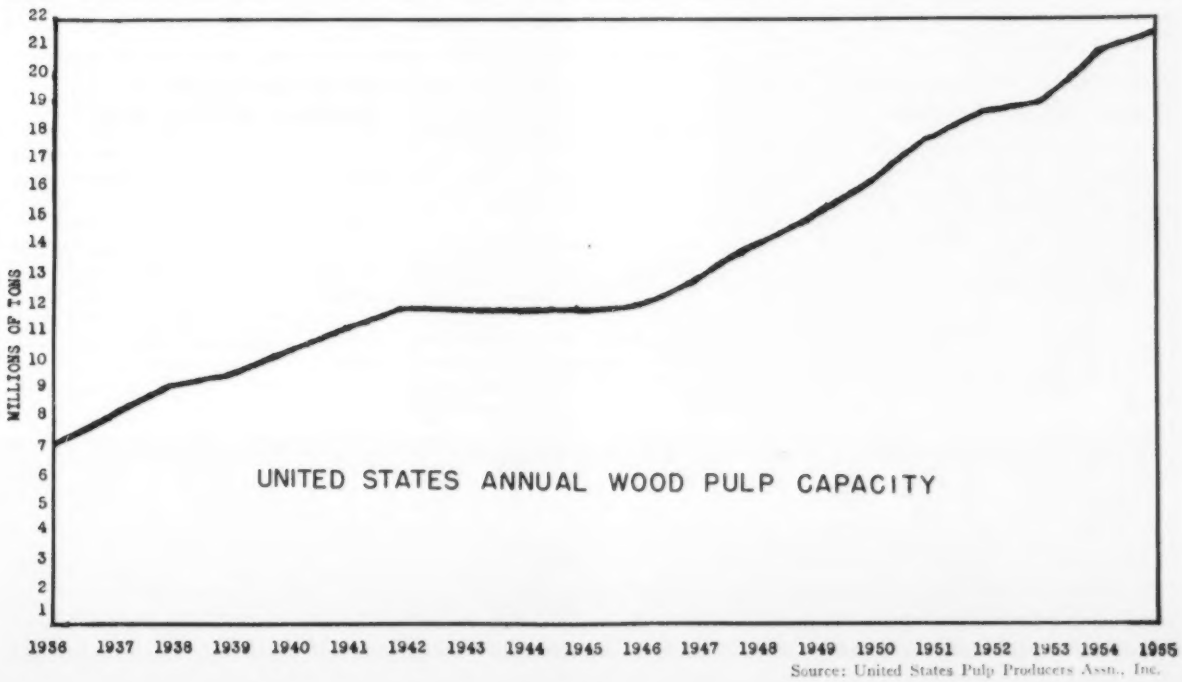
New Machines

| Grade of Paper | 1952 Daily | 1952 Annual Basis | 1953 Daily | 1953 Annual Basis | 1954 Daily | 1954 Annual Basis |
|---|---|---|---|---|---|---|
| Fine | 117 | 36,270 | .... | ..... | .... | ..... |
| Book and Groundwood | 45 | 13,950 | .... | ..... | .... | ..... |
| Tissue | 105 | 32,550 | 15 | 4,650 | 85 | 26,350 |
| Wrapping and Specialties | 450 | 139,500 | 965 | 299,150 | .... | ..... |
| Newsprint | .... | ..... | 110 | 34,100 | 700 | 217,000 |
| Miscellaneous | .... | ..... | 20 | 6,200 | .... | ..... |
| Building Paper | .... | ..... | .... | ..... | .... | ..... |
| Total Paper | 717 | 222,270 | 1,110 | 344,100 | 785 | 243,350 |
| Paperboard | 50 | 15,500 | 2,865 | 888,150 | 993 | 307,830 |
| Building Board | 250 | 77,500 | 50 | 15,500 | .... | ..... |
| Total Paper and Board | 1,017 | 315,270 | 4,025 | 1,247,750 | 1,778 | 551,180 |

### Table IV Survey of New Paper and Paperboard Capacity

Rebuilt Machines

| Grade of Paper | 1952 Daily | 1952 Annual Basis | 1953 Daily | 1953 Annual Basis | 1954 Daily | 1954 Annual Basis |
|---|---|---|---|---|---|---|
| Fine | 10 | 3,100 | .... | ..... | 47 | 14,570 |
| Book and Groundwood | 162 | 50,220 | 91 | 28,210 | 84 | 26,040 |
| Tissue | 8 | 2,480 | 51 | 15,810 | 25 | 7,750 |
| Wrapping and Specialties | 25 | 7,750 | 566 | 175,460 | 35 | 10,850 |
| Newsprint | 22 | 6,820 | .... | ..... | .... | ..... |
| Miscellaneous | .... | ..... | .... | ..... | .... | ..... |
| Building Paper | .... | ..... | .... | ..... | .... | ..... |
| Total Paper | 227 | 70,370 | 708 | 219,480 | 191 | 59,210 |
| Paperboard | 626 | 194,060 | 581 | 180,110 | 483 | 149,730 |
| Building Board | .... | ..... | .... | ..... | .... | ..... |
| Total Paper and Board | 853 | 264,430 | 1,289 | 399,590 | 674 | 208,940 |




Source: United States Pulp Producers Assn., Inc.

more than at the close of 1946. Paperboard mills alone will have increased their capacity by 5.7 million tons, (57.4 per cent), to 15.6 million tons; paper mills will have increased their annual capacity by 3.2 million tons (30.5 per cent) to 13.7 million tons.

In both 1953 and 1954, the major part of the increase in capacity will occur in paperboard, as producers of that commodity expand their capacity by slightly more than one million tons in 1953 and 460,000 tons in 1954.

The manufacturers of paper, as distinguished from paperboard, plan to increase their capacity by 563,000 tons in 1953, of which 344,000 tons would result from the installation of new equipment and 219,000 tons from the rebuilding of equipment on hand. Somewhat more than 80 per cent of this total will result from increases in the capacity of mills producing wrapping paper and specialty boards as those mills increase their annual capacity by approximately 475,000 tons.

No new paper-making machines are planned for by mills in the fine and printing paper fields in either 1953 or 1954. By the improvement of the existing machines, however, fine paper mills will, in 1954, add about 15,000 tons of capacity on an annual basis, and printing paper mills will add capacity amounting to 28,000 and 26,000 tons in 1953 and 1954, respectively.

The present annual capacity of the domestic newsprint industry will, upon completion of present plans, be increased by about 250,000 tons at the end of 1954. At that time the capacity of mills making newsprint will be 1.3 million tons, 23.7 per cent more than at the close of 1952.

**Table V Projected Wood Pulp Capacity by Grades, 1953-1955**

| | As of January 1st | | |
|---|---|---|---|
| | 1953 | 1954 | 1955 |
| Total Wood Pulp | 19,063,832 | 20,914,844 | 21,517,738 |
| Dissolving and Special Alpha | 718,505 | 1,014,695 | 1,113,695 |
| Sulphite, Paper Grades | 2,648,085 | 2,634,180 | 2,643,450 |
| Sulphite, Bleaching Capacity | 2,012,020 | 2,004,295 | 2,004,295 |
| Sulphate, Paper Grades | 9,563,805 | 10,747,427 | 11,006,101 |
| Sulphate, Bleaching Capacity | 2,811,554 | 3,106,279 | 3,263,754 |
| Soda | 472,237 | 477,562 | 477,562 |
| Groundwood | 2,968,130 | 3,005,090 | 3,241,040 |
| Groundwood, Bleaching Capacity | 617,850 | 623,850 | 623,850 |
| Semi-Chemical | 1,230,795 | 1,562,885 | 1,562,885 |
| All Other Grades | 1,462,275 | 1,473,005 | 1,473,005 |

NOTES: 1. Tabulated data subsequent to 1952 are preliminary and subject to revision as new programs are initiated, as indefinite programs become definite, or as additional information is developed.

2. Tabulated data include only reasonably assured capacity increases, resulting from improvements, speed-ups, or new plants. Capacity data for the following new mills, scheduled for completion after 1/1/53, are included in the tabulation:

The D. M. Bare Paper Company
Bowaters Southern Paper Company
Buckeye Cotton Oil Company
East Texas Pulp and Paper Company
Ketchikan Pulp Company
Little Rapids Pulp Company
Rome Kraft
National Container Corporation, Valdosta, Georgia
Rayonier Incorporated, Georgia

DEFINITIONS: Annual capacity is the tonnage that could be produced on an annual basis with full use of equipment and adequate supply of pulpwood, chemicals and labor. The annual capacity of each mill is its reported daily capacity multiplied by the number of days per year that it expects, under normal conditions, to operate, and not necessarily its present operating schedule. All data are in tons of 2000 pounds, air dry weight.

SOURCE: U. S. Pulp Producers Association, Inc.

### Pulp Production

If present plans of pulp producers are acted upon, the industry capacity to produce wood pulp will, from the end of 1952 to the end of 1954, increase by 2.5 million tons (12.9 per cent), to become about 21.5 million tons. Detailed figures are presented in Table V. Of this increase, producers of dissolving grades of pulp will account for 400,000 tons and producers of paper grades of pulp, the balance of 2.1 million tons. In the paper industry the capacity to produce sulphate pulp will undergo the largest expansion, amounting to 1.4 million tons, equal to 66 per cent of the total planned increase for that industry. Although the capacity to produce sulphite and soda pulps will remain virtually unchanged in the period under consideration, the capacity to produce semi-chemical and groundwood pulps will increase by 332,000 and 273,000 tons respectively.

## Nekoosa Operates Third Waste Liquor Lagoon

Following a six-months test of lagooning spent sulphite liquor to reduce stream pollution, Nekoosa-Edwards Paper Co. Port Edwards, Wis., has placed in operation a large new pond for liquid disposal.

Last fall the company excavated two test ponds on an island in the Wisconsin River not far from its sulphite pulp mill and piped to these ponds the spent liquor from several of its digesters. In these ponds, the liquor thus lagooned was subjected to sun and air, and it gradually seeped into the soil.

Tests of the quantities of oxygen dissolved in the river water, made for the State Committee on Water Pollution before and after the lagooning, showed an important improvement after the test lagoons began to operate last fall and during the entire period that they were in use. State and company scientists attributed this betterment to soil bacteria, which they believe consumed much of the wood sugar in the spent sulphite liquor before the liquor eventually found its way into the stream.

Lagooning tests were curtailed last spring for several weeks to accumulate enough spent sulphite liquor so that the company could test other disposal processes with which it is experimenting. This shut-down time was utilized for excavating a new, much larger pond on the island at a site considered more promising.

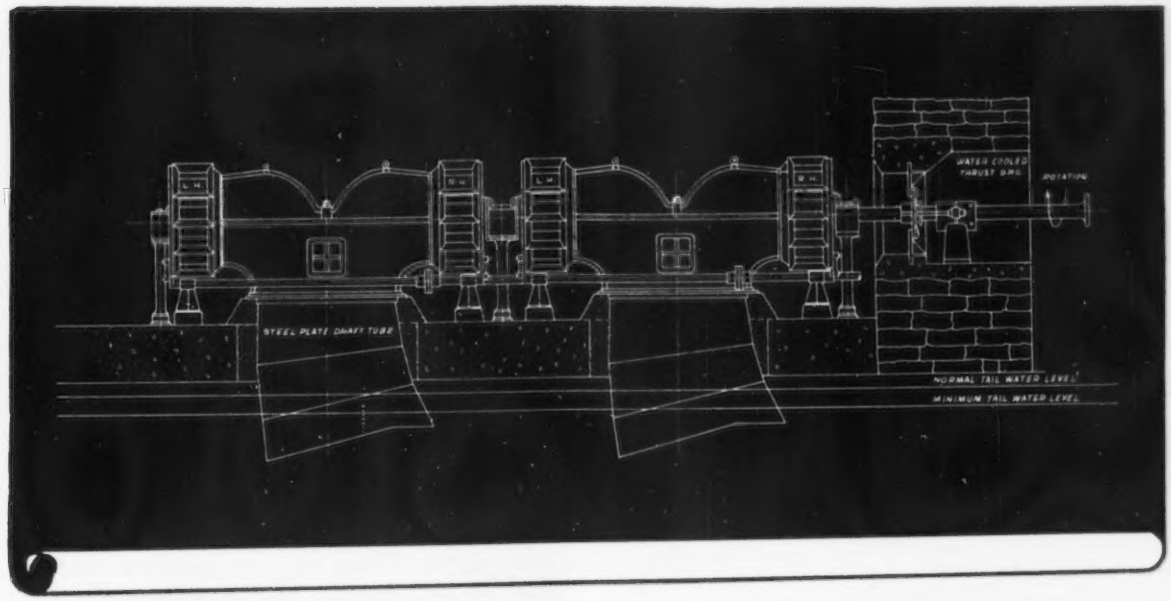
Readings of dissolved-oxygen content of the river water have been made at frequent intervals, and further tests in this direction will be conducted throughout the summer. Also, laboratory examinations are under way, intended to discover just what happens when the spent liquor sinks out of sight into the soil.

## Wage Increases Granted By Two Mills

In recent weeks a large number of paper companies have negotiated wage contracts with the paper makers' union. Hammermill Paper and the Brown Co. have just completed such wage agreements.

Members of the Papermakers Local 620 (AFL), Erie, Pa., accepted a five-cent hourly wage increase from Hammermill. The agreement was reached in time to avert a strike that had been called for July 19.

Last week in Berlin, N. H. a new contract was negotiated between the Brown Co. and Local 75. Union members unanimously accepted an agreement to a general wage boost of four cents per hour. An increase in hospitalization benefits and wages for shift differential were also included in the contract.

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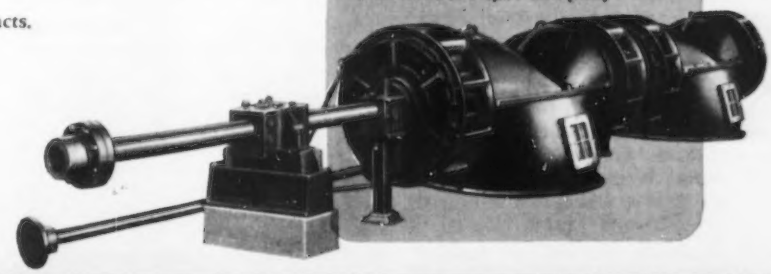
**Claremont Paper Corporation**
**Brownville Board Company**
**Kimberly-Clark Corporation**
**Gould Paper Company**
**Missisquoi Corporation**
**Fox River Paper Corporation**
**Combined Locks Paper Company**
**Marinette Paper Company**
**Neenah Paper Company**
**Nekoosa Edwards Paper Co., Inc.**
**Rhinelander Paper Company**

The blueprint at the top of this page is a typical Leffel turbine paper mill installation diagram, prepared by Leffel engineers for a customer. At the right, below, is the special paper mill turbine diagrammed in the blueprint. Four wheels, two draft chests. All parts, including the large draft-chest castings, were produced in our plant.



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# Recent Developments in the Treatment of Pulp and Paper Mill Effluents

**A. B. Horlock and R. S. Jobin**

**In this interesing paper these English authors discuss the latest developments in stream pollution legislation in Great Britain and the means and processes by which the pulp and paper mills in Great Britain are coping with the effluent problem.**

## Legislation in Great Britain

As a result of the River Boards Act, 1948, and the Rivers (Prevention of Pollution) Act, 1951, the newly constituted river boards are better equipped than their predecessors to give effect to the national requirements for maintaining and restoring the wholesomeness of the rivers in England. The practicability of prescribing legal standards for effluents has at last been recognized, but it does not follow that the same standards will be prescribed for paper mill effluents in all areas. This is because the river boards must have regard to the character and flow of the various streams and the extent to which the streams are used for industrial purposes, fisheries, water supply, agriculture, transport and navigation. This is a sound policy, but its application will necessitate careful investigations if the streams are to be protected without wastage of industrial capital.

The conditions that must be satisfied where effluents are discharged to a stream must now be defined clearly and concisely by the river boards and this is to be accomplished by by-laws prescribing standards for existing or new effluents and by attaching conditions to consents given in respect of new outlets or new discharges. The standards will determine when matter is to be treated as poisonous, noxious or polluting for the purpose of the Act. They may also deal with the temperature of discharges and with effluents that discolour the stream —matters which, in themselves, may not necessarily be polluting. However, compliance with the standard will not necessarily constitute a defence if proceedings taken under the Act relate to pollution by something not covered by the standard. In addition, even if an effluent complies with a river board standard, proceedings may still be taken under common law by persons downstream for nuisance or damage to riparian amenities.

A primary problem in connection with prescribing standards for effluents is that of selecting suitable tests on which to base these standards and defining the analytical methods to be adopted for carrying out the tests. An inter-departmental technical committee has been investigating the technical questions involved in the definition of standards by river boards in by-laws, and it is understood that conclusions have been reached in regard to such tests as suspended solids and biochemical oxygen demand (B.O.D.). Further consideration will be given to tests which are more rapid than the five-day B.O.D. test for determining oxidisable organic matter and to tests for determining toxicity to fish. Ultimately, general guidance will be given on the tests that may appropriately be adopted for the prescription of standards and methods of analysis. It will be the duty of the river boards to determine the limits or standards to be applied within these tests, based on the needs and urgency of local circumstances, subject to approval by the Ministers. The fixing of standards should be based on the existing knowledge of the *best practicable means* of purification of wastes and the views of industrialists will, no doubt, be put forward by effluent committees formed in river board areas. It seem fairly obvious, however, that improvement of the condition of rivers will be fairly slow, particularly in view of the present restricted capital investment programme.

A method of trade waste disposal which river boards encourage whenever circumstances permit, is connection to public sewers. It will be recalled that the Public Health (Drainage of Trade Premises) Act, 1937, gives a right to manufacturers to discharge trade effluents into public sewers, subject to reasonable safeguards, and provides that local authorities shall, either by agreement with traders on individual applications or by means of the enforcement of by-laws, settle the terms on which effluents may be discharged into sewers. There is little doubt that in many instances this is the cheapest and best method of dealing with trade effluents, providing that care is taken at the source to reduce the volume and polluting char-

acter of the waste as far as possible. However, owing to the inadequacy of many sewage works at the present time, it is seldom that trade effluents can be accepted immediately where large volumes are involved. Where a trader wishes to connect an acceptable effluent, in the quality sense, to a sewer instead of erecting his own treatment plant, and is prevented from doing so by the temporary inadequacy of the sewage works, we believe that the request to admit trade waste to the sewer should be approved by the local authority at the earliest opportunity and not delayed until extensions to the sewage works have been completed. This would avoid unnecessary capital expenditure on treatment plant at the trade premises.

Since sewage works' effluents will have to conform at all times to a fairly high standard, it is possible that local authorities will demand that new effluents discharged to their sewers should conform to more stringent standards and they may not accept trade effluents which are difficult to treat and which may interfere with sewage treatment processes. This would put the trader in a difficult position, since, if his waste is difficult to treat in admixture with sewage, it will be considerably more difficult to treat undiluted at its source. However, effluents arising from pulp and paper mills are rarely toxic in character and are amenable to treatment by normal sewage treatment methods in admixture with sewage, so that the difficulty previously mentioned should not arise with paper industry effluents.

## Evaluation of Effluent Disposal Problems

When ways and means are being considered for treating effluent at the lowest cost, it is essential to have available an accurate evaluation of the waste disposal problem. The primary requisite is to have available basic data, such as:—

(*i*) A flow diagram showing the various mill operations and the flow of all important raw materials throughout the mill.

(*ii*) A diagram of the sewer layout.

(*iii*) Data showing the character and amounts of all wastes discharged from the various operations.

The third task would consume the most time, but the results obtained from a thorough investigation of this nature would be invaluable to the mill, since it is then possible to trace the losses from each individual operation and consider whether measures should be taken to reduce these losses at the source (and so reduce the strength and volume of the final mill effluent) or whether all the wastes should be collected and treated together in one final treatment plant. The data will also indicate whether any pollution is arising as a result of carelessness on the part of mill operatives or from occurrences in the mill, such as tank overflows, which might be avoided by more careful planning. Accurate sampling and flow measurements are required in this investigation and in this connection an article by Black[1] is of interest.

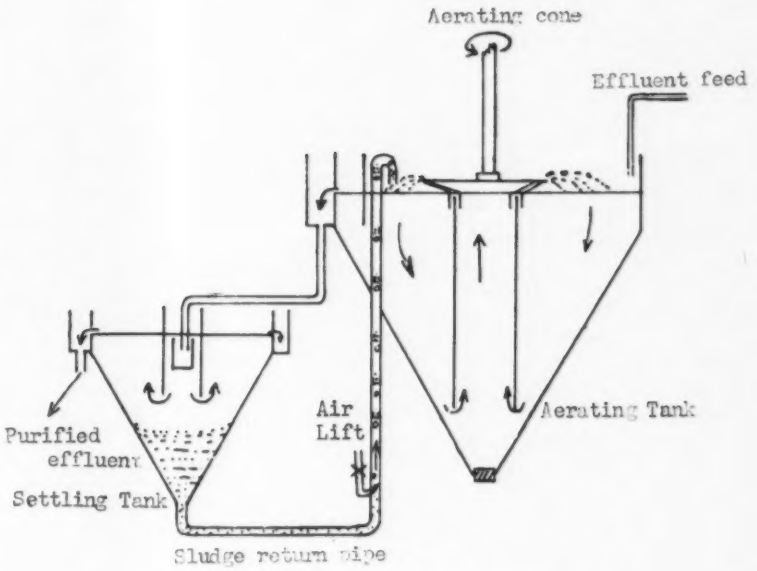



Figure 1

Excess whitewater from the paper machine is a frequent cause of pollution from paper mills which could be remidied at its source by completely closing the whitewater system[27] or, if this is not practicable, by recovering solids from the excess whitewater for re-use in the mill. Pollution from pulp washing effluents at mills with chemical recovery plant can be mitigated by improved pulp washing methods in the Sinclair digester, whilst bleached pulp washings may be re-used for washing unbleached pulp in the potchers.

## Removal of Suspended Solids

### Savealls

Savealls may be installed to recover practically all the solids from excess whitewater, but some mills appear to prefer to recover only the longer fibres and let the fine material escape to the sewer. At such mills, rotary, wire-mesh covered drums or high rate clarifiers appear to be favoured. When all the whitewater solids can be re-used in the mill, savealls involving flotation,[2,3,4,25] filtration with filter aids[5,6,7] or clarification with added coagulants such as alum and activated silica[8,9,15,26] have been found efficient. Since some mills change grades several times during a 24-hour period, any solids recovered from whitewater must be returned to the same grade of paper as quickly as possible. For this reason, flotation and filtration savealls with low detention periods are preferred. Savealls which use aids, such as fibers, inorganic solids or coagulants, must be evaluated in regard to their effect on the quality of the paper to which such aids may be returned. From this point of view, it might be considered that flotation savealls have the advantage over filtration savealls operating with preformed fibre mats or diatomaceous filter aids, but there are other factors to be considered.

If the clarified whitewater obtained from savalls is not suitable for use in high pressure, low flow showers, it may be worth while considering additional clarification treatment. In the O.C.O. system partially clarified whitewater is mixed with diatomaceous silica and filtered using a pressure-type plate and frame filter. At a boxboard mill,[10] the filtered water is used in place of fresh water in low-volume, oscillating jet-type showers on the cylinder moulds and felts after chlorination.

### Final Effluent Treatment

Removal of suspended solids from the final mill effluent is almost invariably effected by some form of sedimentation process in which the velocity of liquid flow is reduced to such a degree that the suspended matter separates by virtue of its greater gravity than the liquid in which it is dispersed. The object must be to pass liquid through the unit at a uniform velocity with a minimum of disturbance. Effective results cannot, of course, be obtained if tank velocities exceed the limits at which particle subsidence will take place. Camp[11] has discussed the theory of sedimentation and the design of settling tanks and has shown that the rate of flow per unit surface area is important. He concluded that shallow tanks were as efficient as

deep tanks of the same surface area provided that sludge was not scoured from the floor in too-shallow tanks. The dimensions of a tank for a given flow of effluent will, therefore, be dependent on particle settling velocity and volume of settled sludge.

According to Anderson,[12] the normal peripheral overflow weirs on circular and rectangular tanks could be improved upon. He found that the wall tended to create upward currents which carried solids up with them. The performance could be improved by supporting the overflow weirs some distance away from the walls. This not only overcame the wall effect, but by providing a U-shaped take-off channel, the length of the overflow weir was doubled, which reduced the overflow rate per unit length of weir. This is important with circular clarifiers, since, if the surface area is increased four times, the peripheral weir length is only doubled.

The most recent development in sedimentation practice is the introduction of high-rate equipment. The principle is to provide prolonged contact of the incoming effluent and coagulants with a large concentration of previously accumulated suspended solids to provide adsorptive surfaces to which the coagulated stock particles can adhere, thus increasing the size and weight of the particles which then settle out more rapidly.[13] Similar effects may be obtained purely by mechanical coagulation without the addition of chemicals. Paper mill effluents vary considerably in regard to the relative proportions of settleable and non-settleable solids and, in order to obtain some idea as to whether the addition of coagulants is necessary, plain settling of a sample for two hours in the laboratory and determination of the settled and unsettled solids is a useful test. If coagulants are necessary, alum and activated silica is a useful combination to start with, whilst magnesium sulphite may be effective at high pH values. Coagulation is not now favored in a separte unit, the modern trend being towards integration of the mixing, flocculation and clarification steps in a single compact unit. This has reduced the installed costs and space requirements. In the *sludge blanket* units, chemicals are mixed in a central compartment and the floc formed passes downward and then upward through a suspended blanket of particles. Another type of tank utilizes mixing with coagulants in a primary zone with return of slurry to act as nuclei, secondary mixing in an upper zone and discharge from the secondary zone as a downwardly moving slurry. These units are provided with concentrator pockets for removal of solids or bottom scraping units if the precipitates are voluminous. A thorough study is required to determine the conditions which will produce optimum floc formation.

If a final cleaning-up is required before the effluent is satisfactory for discharge, treatment with micro-straining plant or sand filters may be practical. Such treatment has been applied to the sewage effluent at Luton for a 12 month period because of the very low dilution by the stream. Capital costs for both processes were much the same, but the operational costs of the sand filters were higher. The sand filters entailed pumping, but the micro-strainers could be worked by gravity head. Mechanical flocculation methods (paddle speeds 15 r.p.m.) should not be overlooked.

## Reduction of B.O.D. of Pulp and Paper Mill Waste

Research into methods for reducing the B.O.D. of pulp and paper mill effluents has indicated that biological methods of treatment have been concerned chiefly with variations of the following basic processes:—

(*i*) Percolating filters, where the waste liquor is sprayed over the surface of a bed of clinker or other medium upon which is formed an active bacteria film which effects rapid oxidation of organic pollutants under aerobic conditions.

(*ii*) The activated sludge process, in which the settled waste liquor is intensively aerated, oxidation of organic matter being assisted by the presence of a dispersed, biologically active sludge containing bacteria, protozoa, etc. A considerable amount of work has been carried out on various types of aerator and diffused air and surface aeration methods are fairly extensively used.

(*iii*) Anaerobic digestion, in which organic matter such as fats, starch, proteins, sugars and volatile acids are fermented under anaerobic conditions (with the production of methane gas and carbon dioxide) in the presence of the type of bacteria which are normally associated with decaying organic matter. The rate of digestion increases fairly rapidly with increase in temperature.

The activated sludge processes may occupy a smaller area of land than percolating filter systems, but they are more easily upset by fluctuations in the quality and flow of the waste liquor being treated and require more maintenance and supervision. The present trend appears to be towards high-rate filtration methods for trade effluent treatment, but in certain circumstances high-rate anaerobic digestion may prove to be a very effective method of obtaining reasonably high B.O.D. reductions at relatively low cost with fairly concentrated waste liquors. Variations of all three methods have been applied to pulp and paper mill effluents in recent years.

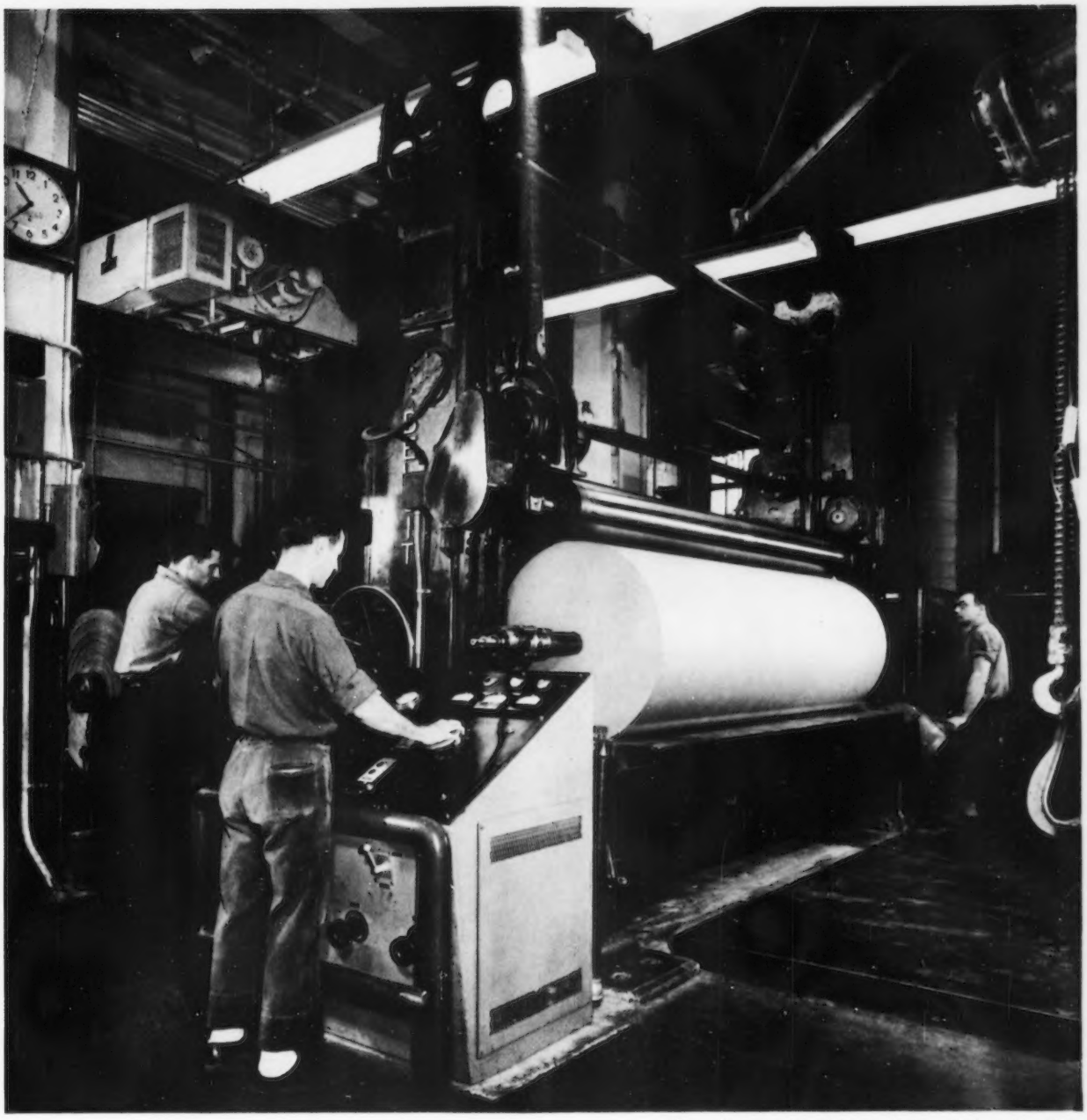
### (a) Esparto, Straw and Rag Pulping Wastes

Investigations which have been carried out at the British Paper and Board Industry research Association have indicated that percolating filter and activated sludge methods are applicable to the treatment of waste arising from the pulping of esparto, straw and rags, even when the wastes have pH values as high as 10.5. With percolating filters, very promising results were obtained with recirculation of treated effluent and removal of B.O.D. with esparto wastes were found to increase linearly with the applied B.O.D. load up to loadings of 2 lb. B.O.D./cu. yd. media/day. Ponding of the 1 ft. diameter laboratory filters occurred when loadings exceeded 2.8 lb. B.O.D./cu. yd./day. Pilot scale plant is now being erected at an esparto mill to investigate high-rate filtration methods on a larger scale. The pilot plant consists of two 10 ft. diameter filters filled to a depth of 4½ ft. with 3 in. clinker supported on a false floor made up of drainage tiles. One of the filters will be used for single filtration of esparto pulp washing effluent, whilst the other will incorporate recirculation of part of the treated effluent. The filters may also be operated in series. Continuous dosing of effluent to the filters will be effected by motor-driven, rotating spray pipes.

In the laboratory trials with the activated sludge process, surface aeration methods were found more suitable than diffused air methods for esparto and rag effluents because they prevent build up of froth. The laboratory apparatus finally employed was based on the Simplex process used for sewage treatment and is shown diagrammatically in Fig. 1.

Untreated effluent was fed at a constant rate to the aeration tank which had a capacity of 10.5 litres and a surface area of 1 sq. ft. The rotation of the cone caused turbulence at the surface of the effluent and also circulated the contents by drawing up the liquor in the central tube and distributing it over the surface again. The treated liquor containing the biological sludge (which was gradually built up in the course of time) then flowed into the settling tank (capacity 3.5 litres) where the sludge settled out. Means for re-aerating and returning the settled sludge from the bottom of the settling tank to the aeration tank in order to maintain the balance of "active" material was provided by a compressed air lift system.

The activated sludge used in this continuous treatment plant was built up over a period by carrying out batch aeration trials with esparto pulp washing liquor to which had been added an extract of soil and ammonium phosphate



*Cornell Paperboard Products Co., Milwaukee, Wis.*

**GOOD SHIPPING ROLLS** of paperboard, tightly started and uniformly hard, are made by Beloit High-Speed Winders because: 1) the Beloit paper run permits tightness control by individually driven winder drums, 2) weighting by heavy driven rider roll is operator controlled, 3) the Beloit water-cooled unwind-stand air brake permits full control of sheet tension, and 4) the shear slitters cut cleanly.—*Beloit Iron Works, Beloit, Wis.*

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as nutrient. During the initial trials with the continuous treatment plant, addition of nutrient salt was continued and, with an esparto pulp washing liquor of 400 p.p.m. B.O.D. and pH 9.4, the B.O.D. reductions obtained were 92 percent with a 24-hour detention period and 83 percent with a 16-hour detention period. When the addition of nutrient salt was stopped, a small reduction in B.O.D. removal was noted and the settling properties of the activated sludge were adversely affected.

On completion of the laboratory trials with esparto washings, the activated sludge was used to treat a dilute rag liquor of 400 p.p.m. B.O.D. and pH 10.5 which had been obtained by diluting the strong waste cook liquor from the boiling of linen rags (B.O.D.=30,000 p.p.m.). After 25 days and with the addition of 40 p.p.m. of nitrogen to the weak liquor, a 97 percent reduction in B.O.D. was being obtained with a 24-hour detention period. When addition of nutrient was stopped, the B.O.D. reduction was maintained and, as with esparto washings, the settling properties of the activated sludge were adversely affected, but not to the same extent.

These trials indicate that soda pulp mill effluents are amenable to treatment by biological methods. The lignin in the liquors contributes little to the B.O.D. and is resistant to biological oxidation. It is, therefore, still present in the effluent from the treatment plant and consequently a high degree of color removal may not be obtained by biological treatment methods. A Simplex surface aeration plant of 1,000 gal. capacity is being erected alongside the pilot percolating filter plant at the esparto mill so that comparative data can be obtained by the two methods on the same effluent.

### (b) Rag Mill Wastes

Staff of the Water Pollution Research Laboratory[17] have investigated the biological treatment on a percolating filter of various wastes from a specialty mill pulping hemp, linen, cotton and other materials by the soda process. The results indicated that the whole of the waste waters, including bleach washings, could be treated in percolating filters to give an effluent of good quality provided that the pH value of the mixed waste water was adjusted, that residual chlorine was removed—and that deficiences in the content of nitrogen and phosphorus were made good by the addition of inorganic compounds containing these elements. To treat a daily production of 1,650,000 gal. of bleaching and machine wastes, 55,000 gal. of rag washings and 13,000 gal. of black liquor, it was estimated that percolating filters containing 11,800 cu. yd. of medium would be needed, with the necessary sedimentation and humus tanks. If the strong black liquor was not included, the volume of media required would be about 4,900 cu. yd. The question of residual chlorine was investigated and the results showed that the percolating filter is reasonably tolerant to traces of free chlorine in the waste, but that the filter must be protected from occasional flushes containing high concentrations of residual chlorine.

### (c) Rag, Rope and Jute Pulping Wastes

Rudolfs and Nemerow[18] have made an extensive study concerning the origin of rag, rope and jute wastes. The rag, rope and jute cooking liquors ranged in volume from 1,500 to 4,000 gal. per ton of product and B.O.D. values varied from 3,380 p.p.m. to 29,220 p.p.m. Beater washings ranged from 20,000 to 80,000 gal. per tons of product and the B.O.D. ranged from 385 p.p.m. to 1,250 p.p.m. The liquors contained lignin, polysaccharides, volatile acids and some proteins and grease, in varying amounts. The B.O.D. of the mill effluent could be predicted approximately from its pH value.

Attempts were made to reduce the B.O.D. of the cook liquors and the first hour of the beater wash by chemical treatment. The results were not too satisfactory, the maximum clarification resulting in a 50 per cent. reduction in B.O.D. being produced by a three-stage treatment involving ferric chloride, sulphuric acid and alum.

Anaerobic digestion resulted in an 82 percent reduction in B.O.D. The mixture of cook liquor and beater washings were neutralized with hydrochloric acid and di-ammonium phosphate was added to give a B.O.D./nitrogen ratio of 20:1. With a loading of 0.027-0.056 lb. B.O.D. per cu. ft. of digester capacity per day, B.O.D. reductions of 72-82 percent were obtained at 35°C.

### (d) Strawboard Wastes

A study of strawboard waste has been made by Bloodgood and his associates.[19,20] Studies prior to 1949 had established that the organic matter in strawboard waste is oxidized as readily as the organic matter in sewage when the nutrients necessary for biological growth are present. The activated sludge process was considered more satisfactory than the percolating filter for year-round operation. Laboratory studies on the anaerobic digestion of strawboard wastes indicated that B.O.D. reduction of over 90 percent could be obtained in 1-8 days when the wastes were incubated at 37°C. On the basis of the laboratory studies, a pilot plant was designed later to operate by the anaerobic digestion method. Waste waters from the strawboard machines were excluded to reduce the volume. The pulp washing wastes had a B.O.D. of 9,560 p.p.m. and a temperature of 31°C. Treatment comprised primary sedimentation, anaerobic digestion and secondary sedimentation. Sedimentation removed 30 percent of the B.O.D. and digestion removed 95 percent of the B.O.D. The main difficulty was caused by bulking of the sludge and poor secondary sedimentation. Effluents below 150 p.p.m. B.O.D. were consistently obtained. Primary sludge proved costly to concentrate on a vacuum filter because of the necessity to add chemical conditioning agents.

### (e) De-inking Wastes

The treatment of de-inking waste on a pilot plant scale has been described by Morgan.[21] The waste was treated by the activated sludge process and a 68 percent reduction in B.O.D. was obtained with 6 hours detention. The initial B.O.D. was 500 p.p.m. and the pH value 9.5. The aeration process was found more efficient than the percolating filter method. Sodium nitrate was added as a nutrient. Primary and secondary sludges from sedmientation tanks were concentrated on vacuum filters at rates of 8.5 lb. and 14-24 lb. dry solids per sq. ft. per hour, respectively.

A larger plant designed to demonstrate the feasibility on a full-scale basis of biological aeration of de-inking waste water is described by Palladino.[22] The treatment plant units are essentially those inherent to the activated sludge process for sewage treatment—that is, primary settling aeration tank, secondary settling, secondary sludge concentration tank and sludge lagoons.

### (f) Paperboard Mill Whitewater

Paperboard mills operating with a practically closed whitewater system will discharge a low volume of concentrated waste which lends itself readily to biological treatment. The treatment of such a waste by anaerobic digestion has been described by Rudolfs and Amberg.[23] The samples of concentrated whitewater, obtained from a paperboard mill utilizing chipboard and waste paper, had a B.O.D. of 2,120 p.p.m. Anaerobic digestion for 4-5 days was found to be effective in removing 70-80 percent of the applied B.O.D. load provided a nutrient salt was added and the temperature maintained between 30° and 35°C. At 30°C., with an applied B.O.D. load of 0.044 lb. per cu. ft. of digester capacity per day, a B.O.D. reduction of 71 per cent and a dissolved solids reduction of 61 percent can be expected. About 3.2 cu. ft. of gas per lb. of volatile matter added will be produced. Ammonium salts were added to give a B.O.D./nitrogen ratio of 20:1. If the waste contains a large amount of sulphate resulting from additions of alum in the mill, hydrogen sulphide is produced, which may retard digestion.

More dilute whitewaters from a paperboard mill in Britain have been treated satisfactorily for a number of years by the normal percolating filter and activated sludge processes.

#### (g) The Biosorption Process

The biosorption process[24] is a high-rate biological treatment method which might be applicable to pulp and paper mill effluents. The basis of the method is to bring activated sludge into intimate contact with the unsettled waste. The capital costs are lower than for normal activated sludge plant and the process is said to accommodate a fairly wide range of flows and pollutional loads.

### Final Remarks

Whilst pulp and paper mill effluents are largely amenable to treatment by methods similar to those used at sewage works or water works, the installation of treatment plant can be a very costly business, partly because of the large volumes of pulp and paper mill effluents, coupled with the fact that they are not uniform in rate of flow or strength and partly because the treatment methods often require the addition of coagulants or nutrient chemicals. Capital coats of treatment might be reduced by the installation of modern high-rate treatment plant.

The lecture was illustrated with slides showing various types of effluent treatment plant.

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### Acknowledgment

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# A New and Valuable Aid for Foremen and Supervisors

The cost of poor human relations becomes apparent to all when the thoughtless action of a foreman or the arbitrary action of management results in a grievance which is carried to arbitration. "Human Relations Casebook" (National Foreman's Institute, New London, Conn., $3.00) is a casebook of arbitration awards, giving the grievances presented, the bases of the arbitrators' decisions, and comment by the editors—members of the staff of *Employee Relations Bulletin*—on ways the dispute could have been avoided.

Presenting well over a hunderd actual cases selected for their representative quality from the thousands available, "Human Relations Casebook" deals with problems which arise every day in business and industry. Absenteeism, vacation pay, grounds for dismissal, the status of union stewards, overtime, defective work, slowdowns—all these and many more common problems are dealt with in this factual, informative handbook.

Because the cases included are typical, this casebook eliminates the need for poring over arbitration records. Because the points at issue are clearly defined and the bases for awards clearly given, the casebook provides a source of information not only for those who negotiate with unions, but for the foremen, supervisors, and other representatives of management who are in day-to-day contact with the workers.

Equally impressive with the contents of the book are the causes to which it may be put. It can, for example, be used in training courses for foremen and supervisors to demonstrate to them the importance of good human relations and the responsibility which rests with them to see that company policies are executed without conflicting with the terms of union contracts.

The casebook can also be used as an aid in drawing up contract clauses. Because the terms of the contract guide the arbitrators in making their awards, it is of paramount importance that its clauses are clearly worded, specific, and inclusive. No lesson is more clearly taught by these cases than that the rights of management must be spelled out if they are to be retained. The editors of "Human Relations Casebook" have given valuable help in this direction by providing sample clauses which would have eliminated the basis for many of the disputes reported.

All foremen, supervisors and negotiators should be provided with a copy and the opportunity to discuss the lessons for management which it contains.

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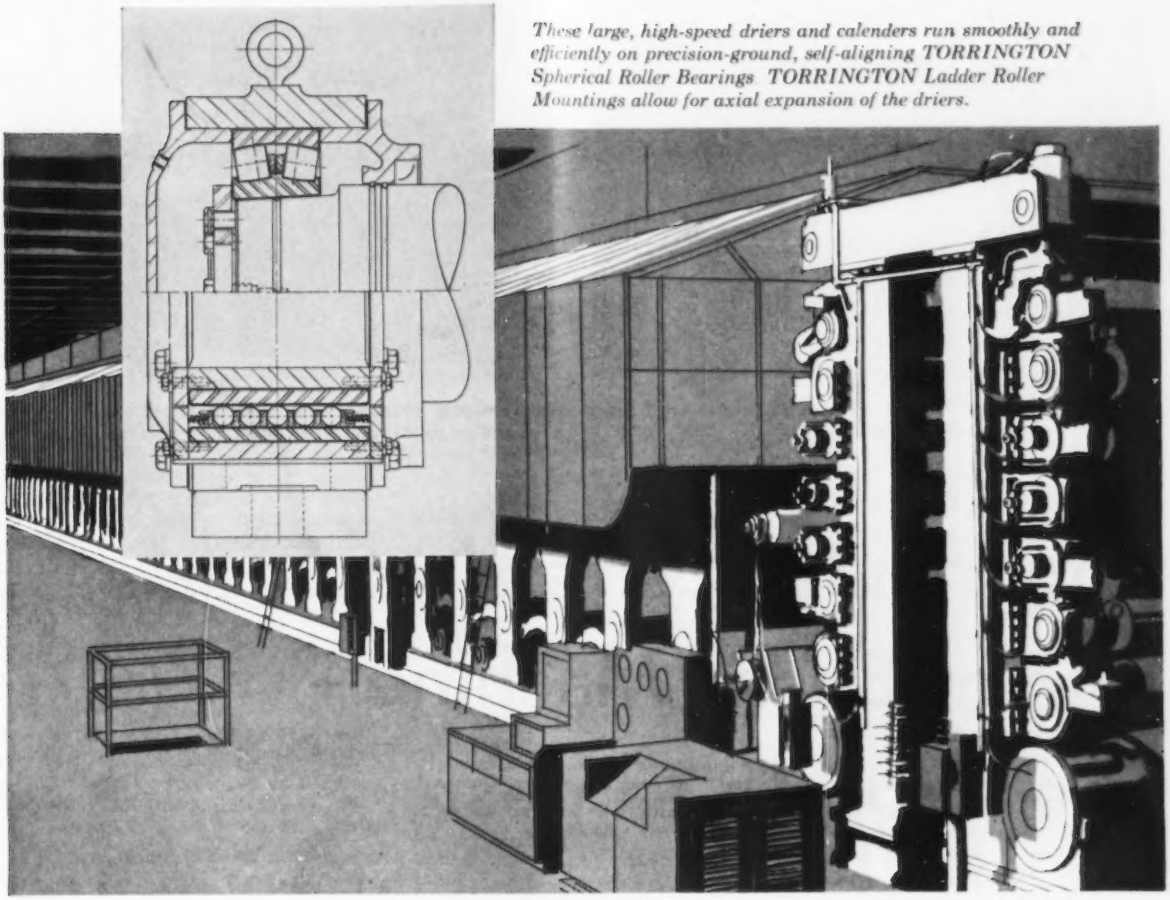

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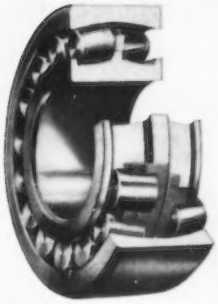

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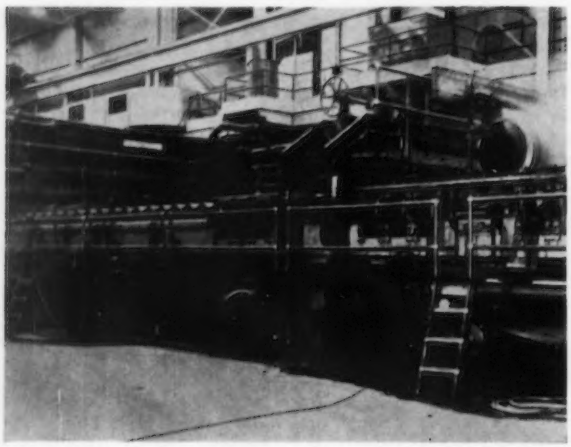
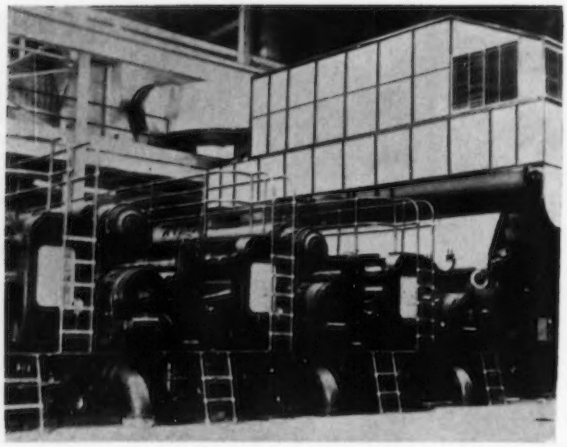


Fourdrinier section showing front end of cantilevered secondary head box.



Conventional hydraulic controlled press section. Note air distribution to wet end from ducts incorporated in machine

# Continental Can's New Fourdrinier Board Machine—The World's Largest

**A description of the new 250 inch trim fourdrinier board machine recently installed at the Continental Can Co. mill at Hopewell, Va.**

An important step in the development of Continental Can Co's. pulp and paperboard operations at Hopewell, Va., is the installation and operation of a 250 inch trim fourdrinier paperboard machine. Its introduction is also a significant step forward in paperboard machine design and operation, since the trim of the machine is approximately 2 feet wider than any previous fourdrinier paperboard machine.

Continental installed this machine in order to supply drum liner board to meet existing demands for the company's fibre drums and to meet additional demands for fibre drums being created by Continental research developments. The machine's high potential capacity and wide trim also puts Continental in the position of a dependable and versatile supplier to users of regular kraft liner board.

The fourdrinier machine has been provided with adequate wet end, press section, dryers, auxiliaries and other design features to enable it to operate at speeds comparable to those being attained by smaller paperboard machines. The present production, however, will average between 450 and 500 tons per day until such time as additional pulp supply is available through more outlets.

Following the installation of the fourdrinier machine, additional improvements contemplated for 1953 and 1954 will increase the capacity of Continental's pulp mill to approximately 600 tons a day. These improvements will include complete facilities for preparing waste paper as a stock furnish, a laminator for laminating board up to .250 caliper and expanded steam and power generating capacity.

### Auxiliaries

The new 250 inch trim paperboard machine is provided with the usual auxiliaries and stock preparation equipment. Two Olive deckers are used for thickening the stock delivered from the pulp mill before this stock passes through 2 DeZurik consistency regulators for consistency control in the raw stock storage chests. Three 48 inch and 5-42 inch Sutherland refiners are used for primary treatment of stock. Jordans are used for further treating that portion of the stock which is used in the secondary head box. This stock preparation equip-

ment is arranged and designed primarily for properly preparing and controlling stock in making liner board with the secondary head box but it is also adaptable to making a solid sheet.

### The Machine

The machine itself, built by the Bagley & Sewall Company, incorporates design features which are peculiar to this machine. Some of these features are Bagley's, some are designs worked out by Continental's plant operating and engineering staff.

The head box is an open type using perforated rolls exclusively, in place of baffles, and an explosion chamber for the distribution of stock into the head box. This head box has proved most satisfactory for distributing the flow of stock across this wide machine.

The furdrinier section is a complete cantilever type with a 54 inch couch roll being entirely supported and cantilevered by the fourdrinier frame, without a separate cantilever arrangement. The Sale secondary head box has an independent cantilever arrangement so that it does not have to be removed when changing wires.

The press section consists of three straight-through presses of simple conventional design. The suction press rolls are bronze without covers and the top press rolls are self-skinning rubber covered.

The dryer part of the machine is made up of 80 paper dryers and 25 felt dryers divided into three sections which dry the paper prior to its passing through a size press where starch solution is put on both sides of the sheet. After the size press, the sheet passes through 12 additional paper dryers. All dryers are 5'-0" diameter.

There are 2 calender stacks, each capable of carrying 9 rolls and each having a 42 inch diameter king roll. Both of these stacks have open side frames and there are 2 intermediate dryers between the stacks. The reel, manufactured by the Beloit Iron Works, is of standard heavy duty board.

The winder, designed and built by Bagley, can operate 4000 feet per minute. A special device is used for pulling the winder shafts and cores, making it unnecessary for the operators to handle these heavy shafts by hand.

Hydraulic equipment rather than air equipment is used for all the press roll loading, wire guide, felt guides, and drives for the perforated rolls in the head box.

### Ventilation and Drive

The hood and machine room ventilating system for this machine, furnished by the Ross Engineering Co., not only provides an air balance for the machine itself but also provides a more comfortable machine room, free from high humidity.

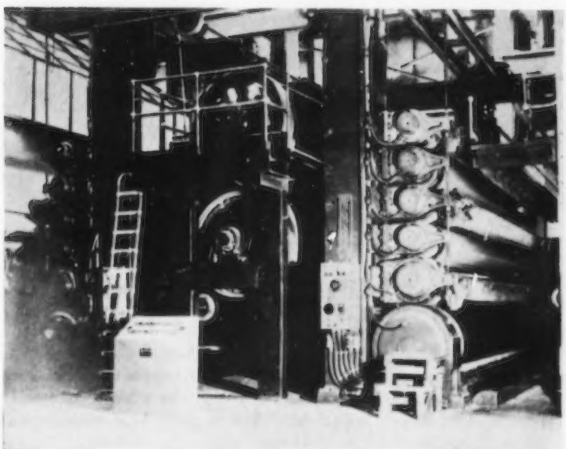
A General Electric electronic type machine drive with 12 drive sections and re-generative winder drive is provided. Each drive section has a separate generator supplying D. C. current to the individual motor drives. These generators are mounted on a continuous base and are all driven by a 2500 h.p. synchronous motor. The control room for the generator sets, the control panels, and the amplidyne sets operate under pressure and all air entering this control room passes through a Ross washer and Westinghouse electrostatic precipitator which removes dust, fumes, and heat from the sensitive equipment in the control room.

### Machine Room

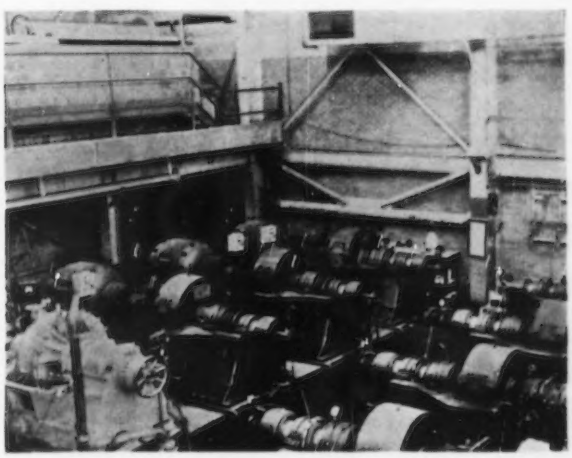
The machine room building is 650 ft. long, 86 ft. fide, and 37 ft. from the operating floor to the bottom chord of the roof truss. The stock preparation is located in the end of the machine room building and is on the same operating floor as the machine, making, one continuous building section to house this equipment. The installation is such that the new machine room is continuous with the old machine room. This made it necessary to provide a basement under the new machine, but also made it possible to load paper directly into cars without use of an elevator. The machine room is provided with a mezzanine floor housing all fans, heaters, duct work, etc. The remaining auxiliaries are located in the basement. Careful planning of equpiment arrangement and piping and electrical facilities make an exceptionally well arranged and accessible installation.

The railroad siding enters the shipping building, which is located opposite the winder and is continuous with the machine room building. This provides indoor loading of cars and the maximum of convenience in handling shipments.

This project was directed by Continental's Hopewell plant staff, with J. E. Sirrire Co., of Greenville, S. C. serving as consulting engineers. Construction work was handled direct by Continental's Hopewell engineering staff, with plant forces taking care of all equipment, electrical, piping and mechanical installations.



Calender stack.



Partial view of Sutherland refiners and Oliver deckers.

# PAPER PEOPLE

## Vranian Named Sales Mgr. of Chesapeake Corp.

Henry Vranian has been named sales manager of The Chesapeake Corp., West Point, Va. succeeding the late W. C. Gouldman.

Mr. Vranian has been with the company nineteen years, having served as chief chemist and later as assistant general superintendent. During this time he handled the technical service for the Sales Department. He was closely associated over a period of many years, with Mr. Gouldman, who was vice-president in charge of sales. His contacts with the company's customers have been extensive and he is well known among consumers of kraft pulp and converters of kraft linerboards and papers.

Mr. Vranian took an active part in the affairs of the TAPPI Alkaline Pulping Committee having served as Chairman of that group for several years.

## Smith Heads Sales For Scott's Atlanta Dist.

E. Lawrence Smith is now retail district sales manager for Scott Paper Co. Atlanta, Ga. Mr. Smith joined the Scott organization in 1950 as a retail salesman in Birmingham, and later that year was transferred to Tampa, Fla. Following additional sales activity in Cincinnati, he was named retail district sales manager in Nashville.

## Changes at St. Regis East Pepperell Mill

William H. Anders of Nashua, N. H., resident manager of the East Pepperell mill of the St. Regis Paper Co., retired from that position June 30 but will continue to serve in an advisory capacity at East Pepperell. Mr. Anders was formerly president of the Nashua River Paper Co. at East Pepperell with which he became associated in 1919. He joined St. Regis when it acquired that company in 1946.

Robert A. Chase, also of Nashua, has been appointed resident manager at the East Pepperell mill, succeeding Mr. Anders. Russell Hamilton, heretofore general superintendent, has been named mill manager. Mr. Chase will continue in charge of Kraft paper sales in the New England area.

The company's retirement plan reached the end of its first five years of operation on July 1. Under a company policy which became effective on that date, mandatory retirement is called for on the part of all employees who reached 70 years of age and over.

Recently honored at a banquet at the Ronchen Inn, Townsend, were Mr. Anders, Mr. Chase, Mr. Hamilton and nine other employees who retired at the same time as Mr. Anders. Among those attending the festivities were Frank W. O'Neal, beater engineer, East Pepperell, 28 years; Andrew G. Anderson, piper, East Pepperell, 10 years; Chester S. Fuller, paper maker, East Pepperell, 26 years; Michael F. Morrissey, finishing supervisor, East Pepperell, 27 years; John V. Rodier, papermaker, East Pepperell, 18 years; Premo Borgatti, core cleaner, Pepperell, 6 years; Alfred F. Hill, bench hand, gumming room, East Pepperell, 6 years; J. C. Newmaire, millwright leader, Pepperell, 6 years; George S. Lakin, timekeeper, East Pepperell, 6 years.

James M. Sim, Groton, beater superintendent, 27 years; George E. English, Ayer, blacksmith, 24 years, and Lars A. Steinholtz, East Pepperell, 7 years, were unable to attend.

Other guests included Francis V. Balch, personnel manager, Rudolph F. Wagner of Nashua, local representative of the St. Regis Retirement Plan Committee, and George Z. Goyette.

## V. L. Tipka Named V.P. and Dir.

**Vernon L. Tipka**

At the annual meeting of the St. Lawrence Paper Corp., Vernon L. Tipka was appointed a vice-president and a director of the corporation according to an announcement by John S. Knight of the Knight Newspapers, Inc., and James L. Knight, president of the corporation. Mr. Tipka was formerly assistant to the president. The St. Lawrence Paper Corporation is located at Norfolk, New York and manufactures newsprint and other groundwood specialty papers.

## C-Z Names Young to Manage Eastern Sales

Crown Zellerbach Corp. has promoted Frank W. Young to assistant manager of its Eastern Division and sales manager of industrial products of its paper mill at Carthage, N. Y. Mr. Young transfers from his former post as district sales representative in Minneapolis to the New York office, where he replaces G. S. Runyan. Mr. Runyan was promoted and transferred to the corporation's headquarters office in San Francisco on July 13.

Mr Young started with Crown Zellerbach in June of 1931 as a paper tester at the specialty paper mill at Camas, Wash. Except for a brief period at this job and three years in military service, Mr. Young has been continuously in sales work with the company. He will have two assistant sales managers: E. F. Mansfield and Leo Jacobs.

## Gair Promotes Keith Max

Norman F. Greenway, vice-president in charge of the folding carton division of Robert Gair Co., Inc., New York has announced, effective August 10, the appointment of Dr. Keith Max as his assistant in charge of the paperboard production of the folding carton division. His headquarters will be at the general offices of the company in New York.

Dr. Max came to the Gair company in 1943, and since 1949 has been assistant technical director of the company's research department.

**Charles L. Silvernail**

## Silvernail Covers N.E. for Roosevelt

The Roosevelt Paper Co., of Philadelphia, has recently appointed Charles R. Silvernail, to the New England area. Mr. Silvernail's last connection was with the American Writing Paper Corp.

## Vandewater Moves

The offices and warehouse of Vandewater Paper Co., Div. of Chesapeake Industries, Inc. have been moved to 515 Canal street, New York 13, N. Y.

## OBITUARIES

**Elmer Holmes Bartlett,** 86, a member of the board of directors and a former vice-president of Bird & Son, Inc., East Walpole, Mass., and the oldest employee of the company, died at the Healthland Convalescent Home, Norwood, Mass., July 22. He was born in Plymouth September 21, 1866, and educated in the public schools there.

He started work for the company July 25, 1885 in a little one-room office, in which was the entire office staff of four. He grew as the company grew, eventually becoming sales manager of the Special Papers Division, a position he held for many years. Later, he became vice-president and consultant, and even after giving up most of his offices, he still remained a member of the board and served in an advisory capacity to the executive committee.

Each day until last December he was at his desk, driving in from his farm in Plainville, Mass., where he lived.

He was a member of the board of directors of the Norwood Cooperative Bank for 52 years and for many years served on the executive committee of the board.

He took great pride in his 50-acre farm, which he always supervised personally. He spent many hours working on the farm as late as 1951, helping with the haying.

In 1895 he married Elizabeth Merriam, who died in 1929. Several cousins are living in Plymouth, Mass.

Services were held from the Plainville farm July 25, with burial in Oak Grove Cemetery, Plymouth.

**Frank Johnson,** 63, who retired as general superintendent of Crocker-McElwain Co., Holyoke, Mass. about three months ago died early in the morning of July 27. He was connected with Crocker-McElwain for 17 years having come to Holyoke from Kalamazoo. Interment was in Kalamazoo on July 30.

**Theodore E. Knowlton,** 80, chairman of the board of Knowlton Brothers, Watertown, N. Y., died July 19 at his home after a long illness.

He was a native of Watertown and was graduated from Rensselaer Polytechnic Institute in 1893 and from 1900 to 1932 he followed the profession of civil engineer in New York State.

Twenty-one years ago he returned to Watertown to join Knowlton Brothers. He served as president until 1948 and since then has been chairman of the board.

He is survived by his wife and daughter, and a son, David C. Knowlton, who is the present president of Knowlton Brothers.

## Hoberg Reports on Stream Improvement Project

Its $2,500,000 plant project for keeping wood sugars out of the Fox River and Green Bay is coming along well on schedule, Hoberg Paper Mills told the Wisconsin Committee on Water Pollution in a progress report for the first half of 1953. Construction has been under way for more than three months, and much of the plant equipment is already delivered or in process of manufacture by suppliers.

In his company's report M. J. Auchter, vice-president-manufacturing, reminded state authorities that the project consists of three phases. A tunnel more than six feet square inside and 3,150 feet long will bring steam from the boiler house to operate the plant. The factory itself, of more than a half-million cubic feet, will manufacture torula yeast from spent sulphite liquor. An installation of pumps and tanks and presses will collect the liquor for processing.

The tunnel is far along, Auchter reported. More than half of the tunnel construction is completed, in barely half the contract time. The two tremendous fans for ventilating the tunnel have been delivered, and the rest of the equipment is in process and on order.

Yeast plant equipment is in various stages of delivery and manufacture and is well under control, Mr. Auchter stated. Foundation plans will soon be ready to submit to the state Industrial Commission, and construction will start promptly after this official approval is received.

"We will most likely be pioneering in the development and application of more or less conventional kraft liquor collection facilities to spent sulphite liquor collection," Mr. Auchter stated in his report. "We are spending more time in investigations and studies on this than was originally deemed necessary. However, we are certain that these longer than anticipated studies on liquor collection facilities will not interfere with the completion or start-up of our yeast plant."

Heart of the Hoberg torula yeast plant will be the process worked out as a sulphite pollution abatement measure by the scientific staff of the Sulphite Pulp Manufacturers' Research League, Appleton. This is the organization for sulphite liquor research that is cooperatively maintained by fourteen Wisconsin sulphite pulp mills.

The process places torula yeast organisms in spent sulphite liquor, where they propagate rapidly under scientifically controlled conditions. The yeast eats the sugars which otherwise would go into the stream, where sugar decreases the supply of dissolved oxygen available for fish. After propagation, the yeast is separated from the desugared liquor and dried. In this state torula yeast is a vitamin-rich protein substance that is rapidly gaining ever greater acceptance as a supplement for animal foods and as a material from which are derived important human nutrients and pharmaceutical products.

## U. S. IMPORTS OF WOODPULP

**Preliminary, May, 1953**

| Item | Country of Origin | Short Tons |
|---|---|---|
| **Mechanical** | | |
| Unbldchd. | Canada | 15,180 |
| | Sweden | 736 |
| | Finland | 2,520 |
| | | 18,436 |
| Screenings | Canada | 309 |
| Bldchd. | Canada | 4,462 |
| | Sweden | 564 |
| | | 5,026 |
| **Chemical** | | |
| Sulfite, Unbldchd. | Canada | 21,908 |
| | Sweden | 7,573 |
| | Finland | 6,569 |
| | Norway | 706 |
| | | 36,756 |
| Screenings | Canada | 145 |
| Sulfite, Bldchd. Rayon & Special Chem. Grades | Canada | 20,354 |
| Other | Canada | 16,929 |
| | Sweden | 4,940 |
| | Norway | 1,720 |
| | Finland | 860 |
| | Austria | 359 |
| | | 24,808 |
| Sulfate, Unbldchd. | Canada | 15,665 |
| | Sweden | 5,124 |
| | Finland | 9,704 |
| | | 30,493 |
| Sulfate, Bldchd. | Canada | 40,338 |
| | Sweden | 12,410 |
| | Norway | 158 |
| | | 52,904 |
| Soda Bldchd. & Unbldchd. | Canada | 2,429 |
| **Totals, May** | Canada | 137,719 |
| | Sweden | 31,347 |
| | Finland | 19,653 |
| | Norway | 2,582 |
| | Austria | 359 |
| | | 191,660 |

# NEWS OF ASSOCIATIONS

## APPA Opposes Rise In Postal Rates

E. W. Tinker, executive secretary of the American Paper & Pulp Assn., joined other leaders from business, labor, and education to protest the recent plea of the Eisenhower Administration for higher postal rates. Testifying before the House of Representatives Post Office Committee, Mr. Tinker stated that the proposed 40 per cent increase in second class mailing rates would "disastrously effect" the publishing business.

He pointed out that the proposed rise, when added to recent increases already ordered, would amount to a 67 per cent advance in publishers' postal costs since 1951. This increased overhead could very possibly throw a number of publications out of business, with consequent reduction of the net intake from second class postage.

The House committee hearing was held July 20 in preparation for legislative action on the Administration's request for a $240,000,000 annual increase in postal rates to offset current operating deficits in the Post Office Dept. Congressional leaders have said prospects were dim for any action before the scheduled adjournment of Congress.

### Superintendents Meeting Dates

| DATE | DIVISION | PLACE |
|---|---|---|
| Sept. 11-12 | Northwestern | Hotel Wausau<br>Wausau, Wis. |
| Sept. 17-19 | New York-Canadian | The Alpine Inn<br>St. Marguerite, Que. |
| Sept. 17-19 | Northeastern | Poland Spring House<br>Poland Spring, Maine |
| October 23-24 | Pennsylvania-New Jersey-Delaware Division | Pocono Manor<br>Pocono Manor, Pa. |
| October 28-30 | Southern and Southeastern (Joint Meeting) | Edgewater Gulf Hotel<br>Edgewater Park<br>Mississippi |
| December 4-5 | Pacific Coast | New Washington Hotel, Seattle, Washington |

### TAPPI Meeting Dates

| DATE | SECTION | PLACE |
|---|---|---|
| Sept. 18 | Lake Erie | Carter Hotel<br>Cleveland, Ohio |
| Sept. 21 | Chicago | 29 So. La Salle St.<br>Chicago, Ill. |
| Oct. 8-9 | Tenth Fibrous Agricultural Residues Conference | Trenton, Ont., Canada |
| Oct. 15-16 | Third Corrugated Containers Conference | Statler Hotel, New York, N.Y. |
| Oct. 26-29 | Engineering Div. | Sheraton-Mount Royal Hotel<br>Montreal Que.<br>Canada |
| Nov. 18-20 | Alkali Pulping Conference | Rice Hotel, Houston Texas |

## Syracuse C. of F. Will Resume Pilot Plant Research

Pilot plant research activities on pulp and paper have been authorized by the Board of Trustees of the State University of New York College of Forestry at Syracuse. Prof. Robert G. Hitchings was named Project Leader of pilot plant research and will supervise a four-man staff.

The New York College proposes to provide service to industry and government agencies and to undertake group-sponsored research on paper machine, pulping, pulp refining and related problems.

Pulp and paper pilot plant studies at the College were previously carried out beginning in 1938 when the pulp and paper laboratory was completed. During World War II, the equipment was used for the manufacture of battery separators from redwood bark. Pilot plant research has been restricted since the war because of high student enrollment and other research demands.

The pilot plant group will specialize in projects requiring the unique equipment which the College possesses in its pulp and paper laboratories. Under the new plan, any industry, institution, state or federal agency may propose a project. If the study is within the pilot plant's scope, a contract will be made between the sponsor and the Research Foundation of the State University of New York.

## Join U. of Me. Pulp & Paper Foundation

T. G. Mangan, manager of the International Paper Co., Livermore Falls, Maine, and chairman of the membership committee of the University of Maine Pulp and Paper Foundation, said that two more concerns have taken memberships and one concern has made a special gift to the Foundation.

The new company members of the foundation are E. D. Jones and Sons Co., Pittsfield, Mass., and Union Bag and Paper Corp., New York City.

D. Benedetto, Inc., New York City, is the concern that has made the special gift.

## International Adds Support to U. of M. Foundation

International Paper Co. has made a special gift of $1,000 to the University of Maine Pulp and Paper Foundation.

## Shopsin Moves Offices

Shopsin Paper Co. has removed its offices, factory and showroom to 92 Candam street, New York 13, N. Y.

# What Is The Pulp & Paper Future Of Michigan's Upper Peninsula?

The Economic Development Commission of the State Of Michigan released on June 29 a 188-page report which is an *Engineering Study of the Economic Resources of the Michigan Upper Peninsula*, prepared for the state by Ebasco Service Inc. of New York with cooperation from 50 Michigan state and independent agencies. Scope of the study included: 1. Assembly of data on Upper Peninsula resources and economic conditions, 2. Appraisal of data by Ebasco consultants, 3. Determination of most likely development opportunities, 4. Recommendation of programs for the economic development of the area. Analyses of the present state of pulp and paper production in the area is included in the report, along with a realistic evaluation of the prospects for expanding it. A summary of the pulp and paper judgments is reported below.

### Present Status of the Industry

Total value of Upper Peninsula pulp and paper manufacturing in 1950 was $35,745,000. Among seven segments of the forest products industry, it ranked first in value and fifth in number of employees. There are four integrated mills in the area: two groundwood, one sulphite, one kraft. Also in the area is one mill using imported pulp and one groundwood department of a Wisconsin mill. All the mills obtain their pulpwood on the open market. Only the kraft board mill obtains all its wood on the peninsula. The others are obliged to supplement with Canadian imports.

Spruce and balsam stands are scattered and adapted mainly to small logging units. Most of the mills have buyers who make yearly carload lot contracts with small pulpwood producers. All aspen is second growth. Maintaining or expanding the industry in the area must depend eventually upon importing more softwood or substituting aspen and dense hardwood.

Since the pulp and paper process is continuous, employment is quite steady. There have been periods of reduced schedules, but only one mill has had to suspend production temporarily for lack of market. Two of the mills are small production units which might become sub-marginal in a large market break.

### Prospects For The Future

Expansion in pulping may only be expected in hardwood. Large hardwood timber lands can be purchased or contracted for. Much of the young timber, particularly aspen, is State or Federal owned and must be sold in competitive bidding. A new pulpmill could acquire this wood. It is believed that the capacity of one modern paper plant could be supplied at favorable cost.

A number of sites in the area favor setting up a 150 to 200 ton corrugating board mill that could use cull hardwood from old-growth and aspen or second-growth dense hardwoods. Fine paper production would depend on how much short fiber the furnish could accommodate. With continuingly successful research in use of short fibers, established mills can be expected to compete for future hardwood pulpwood in the peninsula market.

Aspen pulp is found suitable for even acetate rayon production, and there is little reason to believe that other northern hardwood would not be suitable for the production of dissolving pulps.

Hardboard production. is one of the best expansion possibilities for the area. Good board can be made from all peninsula woods, without bark removal or elimination of defective wood. Market for hardboard is expanding, and a moderate sized plant on the Upper Peninsula would be favorably near the great Midwest consuming area.

More complete details on these points and many other economic aspects of the area are contained in the full report, obtainable from Director, Dept. of Economic Development, 422 W. Michigan Ave., Lansing 15., Mich.

# The Arson Problem in Louisiana Woodlands

### A Special Report

Arsonists have destroyed and continue to destroy millions of dollars worth of Louisiana pine and hardwood forests. They pose a very real threat to raw material source of the pulp and paper, lumber, and other southern industries. The problem is not confined to Louisiana but extends to most of the southern states in which wood and wood products are a source of major income. In recent months, southern industrial leaders have intensified their appeal to law enforcement agencies to crack down on the arsonists.

In Louisiana alone, during the past 10 years, $11 million worth of timberlands have been destroyed by fires set deliberately.

A total of 30,800 fires during that time were set in over 1,116,832 acres of the state's timberlands. In the eight month period from July 1, 1952 to February 1, 1953, a total of $1,320,000 worth of forests were destroyed by arsonists.

Louisiana has the third worst record in the nation for fires in "protected areas," according to the division of cooperative forest protection, Forest Service, United States Department of Agriculture, Washington, D. C. Mississippi leads the nation and Florida is second.

According to James H. Kitchens, Jr., Alexandria, executive secretary of the Louisiana Forest Assn., fire is the major reason why Louisiana timberland is producing only one third of the crop of timber it should. "We think arson is the most critical cause of the forest fire problem," he states.

It is believed that most of the fires are set by cattlemen in an effort to facilitate the growth of grass for cattle ranging in the woods and by pig

owners who want their livestock to roam at large.

The belief by cattle owners that firing the woods to burn off old grass growth provides their cattle with better grazing, is erroneous according to research by the agriculture department of Louisiana State University. Burning actually does a lot of damage to the woodlands and results in poorer forage for cattle, the department found.

On the subject of stronger enforcement of arson laws, Secretary Kitchens has said, "the laws of Louisiana are adequate but we need sharper realization by judges and district attorneys of the seriousness of this arson problem." People are burning themselves out of jobs and homes, he said, for 52,000 persons are employed in the lumber, paper and pulp, and furniture manufacturing field in Louisiana.

L. O. Crosby, Jr., president of Crosby Forest Products Co., Picayune, Miss., has summed up much of the thinking of southern industrialists:

"There must be a stock law that will prevent open range grazing, and woods burning must be classified as arson with a mandatory sentence of imprisonment. If a man sets fire to a $1000 barn there isn't much question about the kind of penalty he will receive, but if the person is convicted of burning $100,000 of woodlands, he can get off with a $10 fine."

James E. Mison, Louisiana state forester, states that juries and district attorneys take such a lenient view that we are discouraged and don't even go to the trouble of filing charges any more. Also, it is difficult to catch the arsonist, especially when he uses the "slow match" device which he can throw from a speeding car. By the time the woodlands are burning, he can be miles away from the scene.

In Louisiana from July 1951 to March 1953 there were 469 investigations, resulting in 44 arrests. Of these, 24 cases were convictions, but most of them on the lesser charge of incendiarism and not arson.

# WORLD NEWS AND MARKETS

*England*—Some slight improvement on the paper market is reflected by an increased demand for paper, also from customers abroad. Statistics published on British paper exports during the first five months of this year proved that exports went down considerably, compared with the first 5 months of 1952, the difference being a value of about 8 million pound sterling.

Prices, also for pulp, seem to be stable now. Bleached sulphite is quoted at £49/10/- to £50, strong sulphite at £40/10/-, kraft at £36 and bleached kraft at £54. Import of chemical dry bleached pulp was, in the first 5 months, considerably below the 1952-level, and the same applies, though in a somewhat lesser degree, to all other grades of pulp.

*Sweden*—Notwithstanding the difficult paper market we continue to receive reports from the Scandinavian countries about modernization, enlarging and new papermaking enterprises.

Havrestroms A. B. at Hafverud enlarges its capacity for sulphite pulp to 22,000 metric tons yearly, which will enable this mill to be independant for its raw materials for both its papermills, which make about 25,000 tons sulphite papers and greaseproof.

Also Korsnas A.B. at Gevle is expanding. A new kraft paper mill was finished in 1952. The bleaching plant is enlarged considerably. Eds Cellulosafabriks A.B. at Edsbruk wants to double its yearly production of 12,000 metric tons of sulphate pulp. Billeruds A.B. at Säffle is now working with a new machine for kraftpaper, which came into production early this year. The 526 cm wide and 100 meters long machine was constructed by A.B. Karlstads Mek. Verkstad. Capacity is about 30,000 metric tons of unglazed kraftpaper annually.

*Finland*—At Vaala on Lake Oulujarvi a new mechanical pulp mill is nearing completion. Its entire annual production of 30,000 tons will go to the British paper mill, Peter Dixon and Son Ltd.

A new treaty with Russia calls for Finnish deliveries of 16,000 metric tons of chemical pulp, 12,000 tons mechanical pulp, 10,000 tons kraft paper, 10,000 tons newsprint, 14,000 tons writings and printings, 3,000 tons sulphite wrapping papers, 3,000 tons greaseproof, 10,800 tons boards and 400,000 fathem pulpwood this year.

*Netherlands*—Annual reports from the three large papermaking companies in Holland show smaller figures for 1952 production. The first months of this year are said to have brought a slight increase and, though the paper market still is a little dull, and competition is stiff, the first half of 1953 was satisfactory. At most Dutch mills, much capital was spent during the last years in modernizing and enlarging the mills. This period of expansion may be, for most mills, at its end now and the Netherlands paper industry may be considered as a very modernly equipped industry.

*Belgium*—Three Belgian paper mills, the Papeteries de Saventhem, the Papeteries de Gentbrugge and the Papeteries Catala have stopped their mills and discharged the crew. Belgian reports speak about the stiff competition of Dutch paper mills on the Belgian market, which urged these mills to stop production. Though it is true that costs in the Dutch mills are below the level of costs in Belgian, it should be said that most Belgian mills, among which the three mentioned above, insufficiently modernized their mills after World War II. Their equipment and plant could not stand up against the modern plant and the new scientific methods of the Netherlands paper mills.

*France*—In May 1954, the Technical Exhibition for the Paper and Printing Industry in Paris will be opened for the 4th time. Preceding exhibitions were a great success and this international "Salon" is attracting more and more visitors from abroad.

*Germany*—In the same month of May 1954, the Paper and Printing Exhibition "Drupa" will be held in Düsseldorf, Germany. This will be the second "Drupa" and the first, two years ago, proved to be a most important occasion. American papermakers and converters, coming to Europe in 1954, should avail themselves of the occasion to see Europe's most modern machinery at this exhibition or at the Parisian salon.

## Bid on Filter Plant for Publisher's Paper

A bid opening date for construction of a water filtration plant at Publisher's Paper Co., Oregon City, Ore. was issued July 24, according to Samuel J. Robinson, general manager.

Plans were drawn by Kaiser Engineering Co.

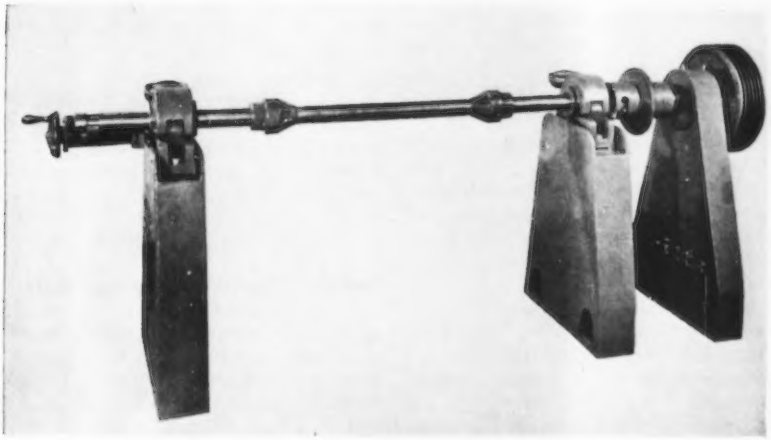
The plant is expected to cost approximately $200,000. It will purify water going into the company's papermaking process. Water now is taken directly from the Willamette river. Chemical treatment and sand filtration by the new plant are expected to remove all solids from the water and to improve paper color.

Some motors and pumps must be purchased by the contractor. Work will be largely steel-reinforced concrete.

## Behrens Moves Offices

S. B. Behrens & Co. have moved their offices to 225 Lafayette street, New York 12, N. Y.

# NEW EQUIPMENT AND SUPPLIES



## Unwind Stand With Air Brake

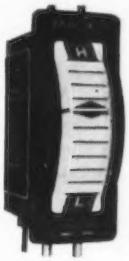
The Dilts Model "UA" Single Position Unwind Stand, featuring an air-actuated brake for regulating tension of unwinding webs, is a recently introduced unit produced by Dilts Machine Wks. Div., Black-Clawson Co., Fulton, N. Y. It is adaptable to unwinding webs of such materials as paper, paperboard, cellophane, foil, and film.

The unit includes quick-acting, split-latch type sleeve bearings and running adjustments for side lay and squaring. The air brake can be controlled either through a manually operated pressure regulator or through a pressure modulating device for automatic adjustment of the breaking efforts as the web unwinds.

It is stated that the unwind stand is available in sizes a wide variety of roll diameters, widths, and duties.

## Level Indicator Visible From Sides

Easier readings of liquid levels are claimed for the Yarway Wide Vision Remote Liquid Level Indicator, now being offered for service on boiler water and other liquids, by Yarnall-Waring Co., Chestnut Hill, Philadelphia 18, Pa.



A raised transparent face on the indicator allows the indicator arm to be extended under the cover to a position where it can be viewed from the sides as well as the front. This innovation makes it possible to check level readings from almost any location in a control room or wherever the indicator may be located.

The indicating mechanism is operated by the boiler water itself, thus assuring instantaneous and accurate readings, it is said. The mechanism is never under pressure and requires no stuffing boxes. The unit is of the manometric type, with automatic temperature compensation.

According to the manufacturer, the indicator is fully approved for use under the new ruling of the A.S.M.E. Boiler Code Committee as covered in Code Case #1155, which permits the use of two remote indicators in place of one of the high pressure boiler water level gages on boilers over 900 p.s.i. pressure.

## Adhesive Coating For Improved Board Printing

A new type of adhesive "precoating" material, known as Resyn 80N782, is now being offered by National Adhesives Div., National Starch Products, Inc., 270 Madison Ave., New York 16, N. Y.

Said to seal and smooth the surface of rough and gray chip board to produce a printing surface similar on board to clay coated stock, the adhesive is being directed particularly to specialty carton manufacture. The manufacturer states that the printing surface obtained with this material permits a glossier, more attractive job with better printing definition and with lowered ink requirements.

The adhesive can be applied in a thin film, requiring approximately two pounds wet of the material per 1000 feet of board. The film dries to a moisture resistant coating that is declared not to smudge under damp conditions. It is further stated that the material is applicable to coating operations that are integrated with a web-fed printing operation.

## Single-Circuit System Transmits Multiple Control Readings

A new multiplexing transmitting and receiving system for use with the company's Metameter Telemeters has just been announced by the Bristol Co. Waterbury 20, Conn. With this equipment, up to 15 readings (either pressure, vacuum, water or liquid level, flow, temperature, static and differential pressure, motion, voltage, current, and totalized load) taken at separate locations or areas can be transmitted over a single circuit to receiving instruments located an any distance, it is said.

The manufacturer explains that this system represents a cost saving since it eliminates the need of separate circuits for each of the transmitted readings. Readings can be transmitted over telephone circuits, carrier current, radio including microwave, VHF, and UHF, private wires, and telemeter circuits (15 CPS channels) available from the telephone company.

## Dynel Filter Fabric

Dynel Windsor Felt is a chemically resistant, fiber-bonded filter fabric for use in filter press or vacuum filter applications to clarify a variety of filtrates and/or reclaim suspended solids. The fabric is produced by American Felt Co., Glenville, Conn.

It is claimed that the multi-ply carded construction of the material produces a fabric with highly uniform fiber distribution. The manufacturer states that it is stable to bacteria and resistant to acid or alkaline solutions. It wets out readily and shows good cake release. Among a number of suggested uses for the fabric is the removal of lube oil sludge from plant water or processing liquors.

# NEW LITERATURE

**Allis-Chalmers Process Pumps.** (Bulletin 52B6615C) Contains illustrated sales copy, exploded view of pump showing construction details, alternate sealing arrangements and standard dimensions in inches. Allis-Chalmers Mfg. Co., 994 S. 70th street, Milwaukee, Wis.

**Battle of the Budworm an Experiment in Forest Management.** (Brochure) Describes pictorially each step in the successful battle by aerial spraying with DDT, joint effort of New Brunswick International Paper Co. and Government of New Brunswick. Published by New Brunswick International Paper Co., Dalhousie, N. B.

**The Beckman Bulletin.** (House Organ 11) Illustrates by actual case histories importance of instrumentation to nearly every modern industry. Also discusses new high-speed automatic strain gage recorded capable of monitoring up to 200 check points in five minutes. Beckman Instruments, Inc., South Pasadena 1, Calif.

**Crystal Urea (Carbamide)** (Booklet) Presents chemical and physical properties, data on solubility and specific gravity of solutions and possible new uses. Nitrogen Div., Allied Chemical & Dye Corp., 40 Rector street, New York 6, N. Y.

**Eaton Electro-Magnetic, Dynamatic, Eddy-Current, Liquid Cooled Couplings.** (Bulletin WC2) Provides illustrated sales copy, application data, selection chart, dimensions, engineering drawing of typical hookup of motor-coupling-load control and technical data. Dynamatic Corp., 3307 14th Avenue, Kenosha, Wis.

**Farval Centralized Systems of Lubrication.** (Bulletin 26) Presents subject panoramically so user or prospective user can decide quickly which system best meets his requirements. Farval Corp., 3249 E. 80th street, Cleveland 4, Ohio.

**Champlain Rool-Fed Cutter-Creaser for Folding Cartons.** (Bulletin) Lists design features, operating characteristics, complete specifications. Also tells how the machine works and different parts operate. Champlain Co. Inc., 88 Llewellyn Ave., Bloomfield, N. J.

**Baker FD.40 Gas-O-Matic.** (Bulletin 1344) Includes diagrams, specifications, load center in inches, special attachments, also explains principle of new fork lift truck with drawings, which operates without clutch, transmission, controller or resistors. Baker-Raulang Co., Baker Industrial Truck Div., 1230 W. 80th street, Cleveland 2, Ohio.

**Dominion Engineer.** (Volume XX-3) Includes valuable hoisting data in article "The Lifting Capacity of Truck Cranes" by T. E. Harris, Engineer, Dominion Hoist and Shovel Co. Ltd., Dominion Engineering Co., Ltd., P. O. Box 220, Montreal, Canada.

**Durcopumps. Durco Type F Valves—Corrosion Resisting.** (Bulletin P/4 and V/4) Contains installation and operation information, parts list and pumping pointers. Includes diagrams and dimension of sizes ¼" through 1" valves. Duriron Co., Inc., N. Findlay, Dayton 1, Ohio.

**Hapman Conveyors.** (Bulletin HEM 132) Includes engineering and mechanical details, also nine typical tubular conveyor layouts for handling sludge, abrasive or corrosive materials, etc. Hapman Conveyors, Inc., Div. Hapman-Dutton Co., Kalamazoo, Mich.

**Honeywell Instrumentation Magazine Index.** (Bulletin 200-B) Includes list of volumed and numbers from 1943 through 1952; alphabetical index of articles by subject and alaphabetical listing of companies and institutions about which articles have been published. Minneapolis-Honeywell Regulator Co., Industrial Div., Station 64, Wayne and Windrim Avenues, Philadelphia 44, Pa.

**Honeywell Unit Measuring Systems.** (Instrumental Data Sheet 10.13-1a) Describes Brown Electronik Recorder and Brookfield Viscometran which give continuous indication and record of material's viscosity under processing conditions. Of value to the chemical, paper, plastics and other industries. Minneapolis-Honeywell Regulator Co., Industrial Div., Station 64, Wayne and Windrim Avenues, Philadelphia 44, Pa.

**Hobbs Automatic Production Cutter.** (4p Folder) Provides illustrated sales copy, specifications and performance data. Power cuts paper, plastics, cloth, etc. at speeds of 6 to 100 ft./min., depending on speed of process and length of cut. Mr. F. J. Woodberry, Assistant Sales Manager, Hobbs Mfg. Co., Dept. N284, 26 Salisbury street, Worcester 5, Mass.

**Milton Roy Motor-Driven Controlled Volume Pumps.** (Bulletin 553) Includes illustrated sales copy, capacity-pressure selection tables, materials selection data and charts. Also chart on industrial applications, including pulp and paper industry. Milton Roy Co., Station "C", 1300 E. Mermaid Lane, Chestnut Hill, Philadelphia 18, Pa.

**South Bend 2-H Turret Lathes.** (Catalogue 5312) Contains action views, views of outstanding mechanical features and complete specifications; also pictures and lists of attachments and accessories. South Bend Lathe Works, 425 E. Madison street, South Bend 22, Ind.

**Peabody Complete Oil Burning Systems.** (Bulletin) Provides pictures of before and after installations of complete combustion systems in the metropolitan area. Peabody Engineering Corp., 580 Fifth Avenue, New York 36, N. Y.

**Resistance Chart — Pennsalt Silicate, Resin and Sulfur Cements.** (Bulletin) Shows corrosion resistance of cements to 297 chemicals. Corrosion Engineering Dept., Pennsalt Chemicals, 1000 Widener Bldg., Philadelphia 7, Pa.

**Warren Quimby . . . the Original Screw Pump.** (Bulletin WQ-S206) Contains illustrated sales copy, cut-away views and approximate dimensions in inches on double external bearing gear screw and gear hopper pumps. Warren Steam Pump Co., Inc., Warren, Mass.

## NEPCO Grants Wage Boost

An offer of a 4.6% general wage increase has been accepted by four unions representing production and maintenance employees of Nekoosa-Edwards Paper Co. The wage boost is effective as of June 1, 1953.

Another provision of the new contract which is in effect until May 31, 1954, provides for reducing the probationary period for new employees from 45 to 31 days. The contract also calls for establishing a new training program for mechanics including a revised rate schedule and other improvements. In addition individual adjustments with the various unions were also negotiated.

The unions, representing some 1400 hourly-paid employees, are Local No. 59, International Brotherhood of Paper Makers, Lodge No. 1543, International Assn. of Machinists, Local No. 52, International Brotherhood of Pulp, Sulphite and Paper Mill Workers, and Local Union 807, United Assn. of Journeymen and Apprentices of the Plumbing and Pipefitting Industry of U. S. and Canada.

# Get these useful facts on bleaching

**NEW 76-PAGE MANUAL**

Describes pulp chlorination, production of lime bleach, preparation of soda bleach, analysis of hypochlorite solutions, equipment and methods for handling chlorine, and Hooker services available to you. For your free copy, write today on your business letterhead.

These bulletins on pulp and paper bleaching can help you obtain maximum efficiency from your bleaching operations. The following subjects are included:

- •201—Process and equipment for making bleach liquor for use without settling.
- •211—Chemistry of bleaching chemical wood pulps.
- •214—What do we know about bleaching?
- •236—Importance of pH and catalysts in bleaching operations.
- •242—Production and use of unsettled bleach liquor.
- •243—Procedures and brightness grades in bleaching sulfate pulps.

Copies of these bulletins, and a list of titles of other helpful literature, will be sent to you without obligation. Address your request to HOOKER ELECTROCHEMICAL COMPANY, 6 Union Street, Niagara Falls, N. Y.

*From the Salt of the Earth*

**HOOKER ELECTROCHEMICAL COMPANY**

NIAGARA FALLS • TACOMA • NEW YORK • CHICAGO • LOS ANGELES

HOOKER CHEMICALS

8-751

# NEWS OF SUPPLIERS

**G. B. Martin**

F. C. HUYCK & SONS, Rensselaer, N. Y. has appointed George B. Martin as sales representative for papermakers' felts and jackets. Mr. Martin will serve a majority of the paper mills in New York State including many formerly covered by Curtis F. Haskins. Mr. Haskins, a Huyck representative for 34 years, will concentrate his activities in the Vermont, New Hampshire, Western Massachusetts, and Hudson Valley areas. This expansion in sales representation will provide improved service to felt consumers, and reflects the ever growing demands of the paper making industry. Mr. Martin began his career with Alliance Paper Mills, Merriton, Ont., and later was affiliated with Daily News Paper Corp. (now International Paper Corp.), No. Tonawanda, N. Y., and Scott Paper Co., Chester, Pa. Throughout his mill associations, Mr. Martin was concerned solely with paper machine operation, and rose from third hand to tour boss while with Scott Paper Co. Subsequently Mr. Martin joined General Dyestuff Corp. as representative to the papermaking industry and is widely known in the territory he will serve in his new capacity. He is a member of the American Pulp and Paper Mill Superintendents Assn., the Empire State Section of TAPPI, and the Hudson-Mohawk Section of American Textile Chemists and Colorists Assn.

E. I. DU PONT DE NEMOURS & Co. has promoted Dr. Merlin M. Brubaker to assistant director of the Du Pont company's Chemical Department, succeeding Dr. Paul L. Salzberg who moved up to director this week. Connected with Du Pont research for 26 years, Dr. Brubaker has been director of research for the Chemical Department and director of Du Pont Experimental Station services for six years.

DODGE MANUFACTURING CORP., manufacturer of power transmission machinery, has launched its fourth quarter-century of service to industry following a series of community and plant events commemorating the 75th anniversary of the firm's founding.

A highlight of the observance was a civic testimonial luncheon, June 15, at which a bronze plaque was presented, on behalf of the City of Mishawaka, by Mayor E. Spencer Walton to Joseph E. Oatis, Jr., Dodge president. The engraved plaque, which followed adoption of a formal resolution by the City Council, reads: "Presented to the Dodge Manufacturing Corp., gratefully commemorating three-quarters of a century of industrial progress and civic achievement in the City of Mishawaka, Ind."

Another feature of the anniversary celebration was a plant Open House, two days later. More than 3,200 guests, including families of employes and friends from Mishawaka and South Bend, took guided tours of the Dodge plant and saw the production of thousands of power transmission products.

H. K. FERGUSON CO., Cleveland, Ohio, engineers and builders announce that E. A. Charlton, associated as an executive and consultant with the paper industry for 35 years, has joined the firm. He will serve in an executive capacity.

Mr. Charlton has been president and general manager of Central Paper Co., Inc., Muskegon, Mich., the last three years. He was vice-president in charge of operations for International Paper Co. and Canadian International Paper Co., for many years.

Mr. Charlton went into private practice as a pulp and paper consultant in New York City from 1941-'50. He also has been general manager of Crossett Paper Mills, Crossett, Ark., manager of the New York World Paper Mills, New York City, and paper mill superintendent of Brompton Pulp & Paper Co., East Angus, Quebec, Canada. Mr. Charlton was graduated from McGill University with a chemical engineering degree and is a licensed professional engineer of New York State.

DURIRON CO., INC. is opening a direct sales office in Needham, Mass., to serve the New England Area. The office will be headed by R. W. Henze who has been with Duriron since 1950 serving in the New York and Philadelphia areas.

**J. B. Kohler**

JOHN B. KOHLER, formerly president and chief engineer of The Kohler System Co., has opened offices at 218 Woodstock street, Crystal Lake, Ill. He is providing consulting services to the paper, paper converting and printing industries. He specializes in special machine design, and process and operating problems.

Mr. Kohler is the inventor of The Kohler System of unwinding and rewinding, with full speed roll change. He has had broad experience in the design and operation of equipment for coating, waxing, laminating, sensitizing, foil mounting, and super calendering.

The Kohler System equipment is manufactured for sale in Canada by the Port Arthur Shipbuilding Co., Ltd., Port Arthur, Ontario, and is represented in eastern Canada by F. E. Palmer & Co., 2195 St. Catherine West, Montreal, P. Q. Sales and engineering of Kohler System Equipment for Canada will include the full speed unwinding and winding roll change apparatus, and will be directed by Mr. Kohler from his Crystal Lake office.

WESTINGHOUSE ELECTRIC CORP. has appointed George H. McBride to assistant division manager of its Switchgear Division.

A native of Pittsburgh, Mr. McBride studied business administration at the University of Pittsburgh and recently completed an advanced management course at Harvard University. He joined Westinghouse in 1922 at the company's Gearing Division in Pittsburgh.

In 1927 he was appointed industrial section head in the gearing sales department and subsequently served in Philadelphia as Middle Atlantic District gearing representative. In 1940 he returned to Pittsburgh as a headquarters representative, handling Gearing Division marine sales. Mr. McBride became sales manager of the Gearing Division in 1942.

**C. W. Mitchell**

NYOTEX CHEMICAL CO., Houston, Texas, has appointed C. W. Mitchell as executive vice president. Mr. Mitchell has been with Consolidated Chemical for 24 years. He was Vice-President of Nyotex prior to his appointment. Nyotex Chemical Co. manufactures aluminum chloride, hydrofluoric acid and lime. It is a mutually-owned subsidiary of Consolidated Chemical Industries Inc., Stauffer Chemical Co., and Harshaw Chemical Co.

WARWICK CHEMICAL CO., a Division of Sun Chemical Corp. has named the J. G. Roger Chemical Co., Inc., Baltimore, Md., as Sales Agent for Warwick's Industrial Chemicals. The Roger organization will handle Warwick's complete line of Surfactants and organic sequestering agents exclusively in Maryland, Delaware District of Columbia, W. Virginia, and Virginia.

INSUL-MASTIC CORP. OF AMERICA has promoted two men to the position of Regional Manager.

Abner H. Bagenstose has been made Eastern Regional Manager, and John J. Miller has been placed in charge of the Midwestern territory. The two men will work from the home office of the Insul-Mastic Corp. in Pittsburgh,

**J. J. Miller**

10
NASH VACUUM PUMPS
are simple
One moving part. No valves, no pistons, no timing gears, no internal lubrication. This makes possible important operating advantages no other type pump offers.
Plus–
A
NASH
PAPER MILL
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NASH ENGINEERING COMPANY
414 WILSON AVE., SO. NORWALK, CONN

Pa. As company representatives, they will give technical and sales assistance to the contracting firms in principal cities who are licensed to sell and apply Insul -Mastic's line of protective coatings.

Mr. Bagenstose has been a part of the Insul-Mastic sales staff for five years. His original assignment with the company was the giant refineries and chemical plants of the Texas Gulf Coast, a natural market for industrial protective coatings. In his new position, Mr. Bagenstose will cover the states from North Carolina to Maine and westward into Ohio.

Mr. Miller was formerly an Insul-Mastic service engineer. Part of his knowledge of coatings was gained through hard experience behind a spray gun.

**A. H. Bagenstose**

## AMERICAN PAPER AND PULP ASSOCIATION'S PAPER PRODUCTION RATIO REPORT

(Production as per cent of normal capacity)

### COMPARATIVE WEEKLY SUMMARIES

| | | | | | |
|---|---|---|---|---|---|
| 1953 | June 20<br>94.0 | June 27<br>95.3 | July 4<br>67.0 | July 11<br>68.0r | July 18<br>90.0 |
| 1952 | June 21<br>88.6 | June 28<br>85.5 | July 5<br>48.2 | July 12<br>63.5 | July 19<br>84.1 |

### COMPARATIVE MONTHLY SUMMARIES

| Year | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | Oct. | Nov. | Dec. | Year Avg. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1952 | 97.1 | 97.8 | 95.1 | 90.4 | 87.9 | 87.6 | 73.3 | 86.1 | 81.7 | 90.7 | 90.5 | 85.3 | 88.6 |
| 1953 | 94.5 | 94.6 | 94.4‡ | 92.7‡ | 93.9‡ | 94.2‡ | | | | | | | |

### COMPARATIVE YEARLY SUMMARIES

| | 1946 | 1947 | 1948 | 1949 | 1950 | 1951 | 1952 | 1953 |
|---|---|---|---|---|---|---|---|---|
| Year to Date | 99.3 | 103.6 | 97.9 | 85.5 | 94.2 | 99.9 | 90.9 | 92.6 |
| Year Average | 96.9 | 101.7 | 92.1 | 83.7 | 95.8 | 98.0 | 88.6 | |

‡ Preliminary.
r Revised.

### PAPERBOARD OPERATING RATIOS †

| | | | | | |
|---|---|---|---|---|---|
| 1953 | June 20<br>98 | June 27<br>97 | July 4<br>86 | July 11<br>54 | July 18<br>81 |
| 1952 | June 21<br>85 | June 28<br>82 | July 5<br>56 | July 12<br>51 | July 19<br>80 |

| Year | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | Oct. | Nov. | Dec. | Year Avg. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1952 | 81 | 86 | 85 | 82 | 82 | 82 | 71 | 89 | 88 | 96 | 96 | 85 | 85 |
| 1953 | 91 | 95 | 95 | 95 | 96 | 93 | 93 | | | | | | |

All of the above data is based on tonnage reported to American Paper and Pulp Association. Does not include mills reporting to National Paperboard Association, except in isolated cases where both paper and paperboard are produced and separate tonnage figures are not readily available. Does not include mills producing newsprint exclusively.

Note: In the above tables *all* the ratios shown are on the basis of a normal 6 and 7 day capacity.

† Per cents of operation based on "Inch-Hours" reported on a 6-day basis to the National Paperboard Association.

# MATERIALS

| | | |
|---|---|---|
| **Aluminum sulfate:** | | |
| cml. bags, c.l. wks. cwt. | $1.85 | / — |
| iron-free, c.l. wks. cwt. | 3.55 | / — |
| **Casein, acid prec.:** | | |
| dom. sh. pt. c.l. lb. | .28 | / .37½ |
| imp. ex. dock lb. | .16½ | / .23 |
| **Caustic soda:** | | |
| c.l. wks. solid, 76% cwt. | 3.70 | / — |
| flak. & grd. 400-lb. drums, c.l. | 4.10 | / — |
| liquid 50% tanks | 2.55 | |
| liquid 70% tanks | 2.65 | |
| **China clay:** | | |
| dom. air-float, c.l. wks. ton | 10.00 | |
| water-washed, lump, filler | 11.00 | |
| coating | 17.60 | /30.50 |
| imported, ex. whse. short ton | 16.00 | /29.50 |
| **Chlorine:** | | |
| single-unit tanks, works. cwt. | 2.93 | / 3.03 |
| multiple unit, 2-3 cars per yr. | 3.80 | / 5.10 |
| **Formaldehyde:** | | |
| USP, inh. dms. c.l. wks. lb. | .0666/ | — |
| l.c.l., E. wks. | .071 | / — |
| **Fuel oil:** | | |
| Bunker C, No. 6 hvy. tanks, N.Y. harbor bbl. | 2.25 | / 2.28 |
| **Lime:** | | |
| hydrated bags, wks. tons | 14.50 | /15.50 |
| **Gum rosin:** | | |
| K, M, N, drms, c.l. Savan. cwt. | 7.33 | / 7.38 |
| **Rosin size:** | | |
| 70%, gum & pale grds., tank cars, south, sh. pt. cwt. | 6.50 | / 6.60 |
| **Salt cake:** | | |
| dom. bulk, c.l. wks. ton | 19.00 | / — |
| **Soda ash:** | | |
| light, 58%, bags, wks. | 1.65 | |
| bulk cwt. | 1.35 | |
| **Sodium silicate, 40° Be.:** | | |
| tank-cars, wks. cwt. | 1.00 | / — |
| drums, wks. cwt. | 1.35 | / — |
| 42°Be. WW, tank-cars, wks. cwt. | 1.60 | / — |
| drums, wks. cwt. | 1.95 | / — |
| **Sodium peroxide:** | | |
| dms. c.l. E. of Miss. lb. | .186 | |
| l.c.l. do. lb. | .191 | / .201 |
| **Soybean, protein:** | | |
| chem. isol, wks., c.l., bags. lb. | .23½/ | .24¼ |
| **Sulphuric acid:** | | |
| 60° Be. cbys. c.l. wks. cwt. | 1.75 | / 2.00 |
| l.c.l. wks. cwt. | 2.30 | / 2.45 |
| tankcars, wks. | 16.30 | /18.60 |


**RAG CUTTERS**

**FOR ROOFING AND FINE WRITING PAPER MILLS**

Capacities from one to five tons an hour.

TAYLOR-STILES Company

10 Bridge Street, Riegelsville, N.J.

**THE CARTHAGE MACHINE COMPANY**

**CARTHAGE, NEW YORK**

*Manufacturer of*

**Machinery and equipment for Mechanical and Chemical Pulp Mills and Special Machinery**

**MISCO**

STAINLESS STEEL CASTINGS

FOR ALL EQUIPMENT EXPOSED TO CORROSION BY SULPHITE ACIDS OR OTHER CORROSIVE AGENTS

MICHIGAN STEEL CASTING CO.
DETROIT 7, MICHIGAN

# Paper from native fibers

**PULP AND PAPER INDUSTRY DEVELOPMENT**

NEW YORK, Feb. 28—A plan to help to develop the pulp and paper industry in Central and South America, Africa, and Asia with British and American money and skill has been announced here.

Lyddon and Company, Limited, wood pulp importers operating in Britain and the United States, and their American affiliates through common ownership, Parsons and Whittemore, said they were launching a programme to set up complete pulp and paper mills in those territories.

Mr. Karl Landegger, president of Parsons and Whittemore, said the companies' joint organization would develop projects based on pulping of short-fibred material found in many of the areas as well as offering equipment using standard grades of wood pulp.

He added that the organization would conduct preliminary surveys, deliver equipment that could not be produced locally, and supply technicians until local workers could take over. It would also assist local groups in obtaining raw materials and chemicals and selling the output.—*Comtelburo.*

As appearing in THE TIMES March 2

As appearing in The New York Times Feb. 27

## *World Program Based on Point 4 Developed to Build Paper Mills*

### *Parsons & Whittemore Reveals It Would Be Active in South and Central America as Well as Africa and Asia*

A plan to engineer, develop and build complete pulp and paper mill projects—in Point Four style—in various area of the world was announced yesterday by Parsons & Whittemore, Inc., of this city, supplier of pulp, paper and machinery for the industry.

In making the announcement Karl F. Landegger, president, said that the concern, which observes its centennial this year, would be active in South and Central America, Africa and Asia to develop projects based on pulping of short-fibered material found in many of these countries, in addition to offering equipment utilizing standard grades of woodpulp.

The company will contract to build a complete mill with any specified daily production and quality and will assist local groups in technical and management matters as well as financing.

Parsons & Whittemore recently concluded an agreement with the St. Regis Paper Company, a major producer of pulp and paper, calling for cooperation between the two concerns in the development of pulp and paper mills outside the United States. Under this agreement St. Regis would consider undertaking management contracts in mills to be developed by Parsons & Whittemore, thus assuring capacity operation of a salable product.

Parsons & Whittemore, Inc., which is affiliated through common ownership with Lyddon & Co., Ltd., London, is supported in this field by The Black-Clawson Company, Hamilton, Ohio, paper-machinery manufacturer, and its divisions — Dilts Machine Works, Fulton, N. Y., and Shartle Brothers Machine Company, Middletown, Ohio, and their subsidiary, the B-C International, Ltd., London.

In Great Britain the organization is associated with Millspaugh, Ltd., Sheffield, pioneer in the suction press and vacuum pick-up in the paper industry, and its Canadian subsidiary, William Kennedy & Sons, Ltd.

Parsons & Whittemore will conduct these operations, according to Mr. Landegger:

¶ Make a preliminary survey and prepare an appraisal report.

¶ Engineer the complete project.

¶ Produce and deliver all the pulp and paper machinery and other necessary equipment that cannot be produced in the country where the mill is to be built.

¶ Supply the necessary trained personnel to assure proper operation of the project until local workers can take over.

¶ Assist the local group in obtaining financing over a period of years.

¶ Assist the local group in obtaining the necessary raw materials and chemicals to operate the mill after it is built, as well as sell the output through Parsons & Whittemore's own offices in fourteen countries.

The various companies with which the concern is affiliated are the major suppliers of machinery for the pulp and paper factories projected by it. Their engineering staffs will be available for these projects in order to deliver a going plant to the clients.

The Parsons & Whittemore-Lyddon organization also maintains the Pulp and Paper Research Company, Ltd., in London.

Parsons & Whittemore has a contract for a mill in Brazil to manufacture bleached sulphite from eucalyptus trees. Also being completed is a pulp and paper mill in Costa Rica using abaca fiber as a raw material.

100th ANNIVERSARY

**LYDDON & CO.**
35 New Bridge Street, London EC4, England

**PARSONS & WHITTEMORE**
250 Park Avenue, New York 17

A WORLD-WIDE ORGANIZATION

Sulphur:

| | | |
|---|---|---|
| crude, c.l. mines, contract, long ton | 25.50 | /27.50 |
| f.o.b. vessels Gulf | 27.50 | /30.50 |

Sulphur dioxide:

| | | |
|---|---|---|
| liquid, coml. cyl. wks. lb. | .09 | |
| multi-unit cars lb. | .0535 | |

Starches:

| | | |
|---|---|---|
| pearl corn, bags, c.l. prod. plant | 6.39 | / — |
| white, dextrines, c.l. do. cwt. | 7.78 | / — |
| potato, Idaho, c.l. wks. cwt. | 7.00 | / — |
| potato, Maine, f.o.b. wks. cwt. | 6.50 | / — |
| potato, imported O.D. bags | 7.50 | / 8.65 |

Talc:

| | | |
|---|---|---|
| domestic, sacks, c.l. wks. ton | 25.00 | /30.00 |

Titanium dioxide:

| | | |
|---|---|---|
| anastase, c.l. deld., bags lb. | .21 | / .21½ |
| l.c.l. deld. lb. | .22 | / .22½ |
| rutile, c.l. deld. lb. | .23 | / .23½ |
| l.c.l. deld. lb. | .24 | / .24½ |

SVEEN-PEDERSEN SALES CORP., has moved its offices to 25-36 Jackson Ave., Long Island City 1, N.Y.


**CHAS. T. MAIN, INC.**
**CONSULTING ENGINEERS**
Process Studies, Design, Specifications and Engineering Supervision
**PULP AND PAPER MILLS**
Steam, Hydraulic and Electrical Engineering
Reports, Consultation and Valuations
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**MERKOR**
Non-Returnable, Durable standard mill core.
**GARTEX**
Returnable and Non-Returnable extra strong mill core for regular and special needs.
ANY LENGTH, DIAMETER AND THICKNESS
*Write for samples and prices*
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655 WEST INGHAM AVE.
TRENTON, NEW JERSEY
NEW YORK OFFICE—500 5th AVE.


# PRICES

## MARKET WOOD PULP

Third Quarter Contract Prices. Per Short Air-Dry Ton

| | Delivered Basis | | Varying Freight Allowances | | |
|---|---|---|---|---|---|
| | U. S. | Canadian | Swedish | Finnish | Norwegian |
| Groundwood | | ‡$60.00/ 90.00 | | | $ 75.00/ — § |
| Sulphate, Bleached | 140.00/147.50 | 145.00/155.00 | 137.50/142.50§ | | 142.50/ — * |
| Semi-bleached Sulphate | 135.00/140.00 | | §127.50/130.00 | | |
| Sulphate, Unbl. | 90.00/110.00 | 100.00/135.00 | 100.00/105.00* | 105.00/135.00* | |
| Sulphite, Blchd. | 140.00/ — | 140.00/ — | §130.00/135.00 | 140.00/ — * | 140.00/145.00* |
| Sulphite, Unblchd. | 120.00/ — | 120.00/ — | §110.00/ — | 120.00/125.00* | |
| Sulphite, Unbl. Glassn. | | 124.00/ — | §115.00/ — | | |
| Soda, Blchd. | 140.00/ — | 140.00/ — | | | |

† Midwestern Markets. ‡ F.o.b. Shipping Point. § On Dock Atlantic Ports * Freight allowed.

## RAG MARKET

### New Domestic Cotton Cuttings

Delivered Mill Basis

| | Per 100 lbs |
|---|---|
| No. 1 White Shirts | $13.00/$13.25 |
| No. 1 Unblchd. Muslins | 14.25/ 14.75 |
| Blchd. & Unblchd. Underwears | 14.00/ 15.00 |
| Blchd. Canton Flannels | 11.00/ 11.50 |
| No. 1 Light Silesias | 8.00/ 8.50 |
| No. 1 Light Prints | 6.50/ 7.00 |
| No. 1 Blue Overalls | 7.00/ 8.00 |
| Suntan Khakis | 7.00/ 7.25 |
| Fancy Shirts | 6.00/ 6.50 |
| Mixed Khakis | 4.00/ 4.25 |
| Cottonades | 4.25/ 4.50 |
| No. 1 Washables | 4.00/ 4.25 |

### Old Domestic Cotton Rags

(Prices to Dealers, F.o.b. Ship. Pt.)

| | Per 100 lbs. |
|---|---|
| Mixed White | $3.00/$3.50 |
| Cotton Pants & Overalls | 2.25/ 2.50 |
| Thirds and Blues, Repacked | 1.75/ 1.90 |
| No. 2 Roofing Rags | .90/ .95 |

## COTTON LINTERS

### Memphis Market

F.o.b. Oilmills

| | July 14 Per 100 lbs. |
|---|---|
| Grade 1 n.a. | |
| 2 | $12.50/$10.50 |
| 3 1st cut—felting | 10.25/ 8.50 |
| 4 | 7.50/ 5.00 |
| 5 | 4.75/ 4.50 |
| 6 * 2nd cut—chemical | 4.25/ 4.00 |
| 7 | 4.00/ 3.75 |

* Based on 73% cellulose.

### Bagging

(Prices to Dealers, F.o.b. N. Y.)

| | Per 100 lbs. |
|---|---|
| Foreign Gunny | $3.75/$4.00 |
| Heavy Wool Tares | 4.00/ 4.25 |
| Foreign Scrap Burlap | 2.75/ 3.00 |
| Austr. Wool Pouches | 5.00/ 5.50 |
| Domestic Manila Rope | 6.50/ 7.00 |
| No. 1 Sisal Strings | 5.00/ 5.25 |

## WASTE PAPER MARKET

Prices to mills, per ton, f.o.b. cars shipping point (includes brokers' fees.) These quotations are a partial indication of the price range on volume tonnage in each market on the date specified, as gathered from major dealers. SPECIAL PACKINGS AND SPOT TONNAGE NOT INCLUDED. Prices nominal. See TRENDS.

| | N.Y.-Phila. July 15 | Boston July 24 | Chicago July 6 | Los Angeles July 6 |
|---|---|---|---|---|
| No. 1 Mixed Paper | $9.00/ 10.00 | $9.00/ 11.00 | $8.00/ — | $15.00/ — |
| No. 1 News | 11.00/ 13.00 | 12.00/ 13.00 | 14.00/ — | 15.00/ — |
| Overissue News | 18.00/ 20.00 | 12.00/ 17.00 | 17.00/ — | 15.00/ — |
| Mill Wrappers | 12.00/ 14.00 | 12.00/ 15.00 | 11.00/ — | 14.00/ — |
| Old Corrugated | 22.00/ 23.00 | 19.50/ 20.00 | 25.00/ — | 21.00/ — |
| Double Kraft Ld. Corr. Cuts | 40.00/ 52.50 | 45.00/ 52.50 | 50.00/ 52.50 | 35.00/ 45.00 |
| 100% Kraft Corr. Cuts | 50.00/ 60.00 | 50.00/ 55.00 | 65.00/ — | 45.00/ — |
| No. 1 Brown Kraft | 30.00/ 35.00 | 35.00/ — | 30.00/ — | 45.00/ — |
| Triple Sorted Brown Kraft | 40.00/ 45.00 | 40.00/ 45.00 | — / — | — / — |
| New Br. Kraft Env. Cuts | 60.00/ 70.00 | 60.00/ 75.00 | 65.00/ — | 50.00/ 55.00 |
| New Br. Kraft Bag Waste | 60.00/ 70.00 | 55.00/ 60.00 | 70.00/ — | 40.00/ 45.00 |
| No. 1 Gdwd. Shvs. | 20.00/ 30.00 | 25.00/ 35.00 | 19.00/ — | 27.00/ — |
| White Newsblahks | 50.00/ 55.00 | 60.00/ 65.00 | 40.00/ — | 55.00/ 60.00 |
| No. 1 Soft Wht. Shvs. | 55.00/ 65.00 | 60.00/ 65.00 | 50.00/ — | — / — |
| Hd. Wht. Shvs. | 85.00/100.00 | 80.00/ 95.00 | 85.00/ — | 95.00/ — |
| Hd. Wht. Env. Cuts | 110.00/125.00 | 110.00/120.00 | 100.00/ — | 110.00/ — |
| Col. Tab. Cards | 45.00/ 55.00 | 57.50/ 60.00 | 50.00/ — | 24.00/ — |
| Manila Tab. Cards | 65.00/ 75.00 | 77.50/ 85.00 | 70.00/ — | 47.50/ — |
| Mixed Ledger | 30.00/ 40.00 | 28.00/ 35.00 | 45.00/ — | 26.00/ — |
| White Ledger | 50.00/ 60.00 | 60.00/ 62.50 | 60.00/ — | 40.00/ — |
| No. 1 Book & Mag.† | nominal | 12.00/ 16.00 | 15.00/ — | — / — |
| No. 1 Rep'd. Hvy. Books‡ | nominal | 22.50/ 35.00 | 27.50/ — | — / — |

† Includes Time & Life; no coarse groundwood. ‡ Not to exceed 10% groundwood. § Deld.

# PAPER TRADE JOURNAL CLEARING HOUSE PAPER TRADE JOURNAL

## HELP WANTED

## HELP WANTED

## HELP WANTED

### E. D. JONES & SONS CO.

PITTSFIELD, MASS.

has openings for additional sales engineers. Engineering and sales background, with paper mill experience and knowledge of stock preparation desirable.

Attractive compensation, with group insurance and retirement plan.

A-7

### MEN WANTED—POSITIONS OPEN

We can place—Gen. manager single corrugator box operations; purchasing agent to purchase waste paper, machinery, etc. for paperboard mfg. plant, salary $12,000 year or more; mgr. Cylinder mach. board mill; supt. for flat tissue and lightweight sulphites; production mgr. for photomount mfg.; supt. paper converting; production control man with chem. or mech. eng. degree.

Chemical engineers, chemists and laboratory men, including recent graduates; mechanical engineers, plant engineers, master mechanics, designers and draftsmen; time study-industrial engineers; grad. engineer to take charge of instruments; statistician for technical service dept.

Salesmen to sell paper and board, also demonstrators and salesmen to sell to mills; shift foreman Cylinder mach. roofing felt mill; tour foreman corrugated board mill capable of becoming asst. supt.; Cylinder machine tour boss on board $130 week; machine tenders and back tenders.

LIST YOUR APPLICATION WITH US. IT WILL BE CONFIDENTIAL.

CHARLES P. RAYMOND SERVICE, INC.
Phone: Liberty 2-6547
294 Washington St., Boston 8, Mass.

J-31

WANTED—RECOVERY FOREMAN for large Pacific Northwest Kraft Mill. Practical mill experience necessary with technical background desirable. Good opportunity for advancement if qualified. Please reply in own handwriting giving education, experience, personal data, references and salary expected. Replies will be kept confidential. Address Box 53-271 care Paper Trade Journal. TF

EXCELLENT FUTURE for a college grad possessing a paper background in production, sales or market research who desires a challenging position in marketing research with a large progressive manufacturer. Our employees know of this opening. Reply giving personal, educational and work history plus salary expected. Address Box 53-269 care Paper Trade Journal. A-7

### PROJECT ENGINEER

Expanding organization developing pulp and paper projects in foreign countries has opening for graduate mechanical engineer with pulp mill and power plant experience.

Will be located in Company's New York Office. Duties include engineering and preparation of project proposals for complete pulp and paper mills based on utilization of native raw materials of various countries. Excellent opportunity for right man in a fast growing dynamic organization.

In first letter please submit complete resume of personal background, education, experience and salary expected.

PROJECT DEVELOPMENT DIVISION
**PARSONS & WHITTEMORE INC.**
250 Park Avenue, New York 17, N. Y.

A-7

### PERSONNEL SERVICE ASSOCIATES

**115 State Street, Springfield 3, Mass.**

**SPECIALIZED PLACEMENT SERVICE**

for the Pulp, Paper and related Industries. Attractive positions for Administrative, Technical and Sales personnel always listed. Competent men always registered. Inquiries welcome. Confidential. J-31

### WANTED
### ASSISTANT MASTER MECHANIC

For well established paper mill located within the metropolitan area in New Jersey. Must be well versed in electrical theory and practice and have ability to supervise personnel and organize work for the department.
Age requirement—30 to 45 years. Salary commensurate with ability. Address Box 53-288 care Paper Trade Journal. A-14

### SUPERINTENDENT—PLANT MANAGER

Paper Mill located in upstate New York seeks an experienced Superintendent and Plant Manager to take charge of complete operations and personnel.

The man we seek is already running such a plant, but would be willing to make a change for an increase in financial rewards and the chance to join a progressive, well-rated firm. Excellent salary, if experience merits it. Relocation expenses will be fully paid.

A married man and a college graduate with either an M.E. or other engineering degree is preferred. He should be a good administrator with a proven record of efficient operation.

We want a man old enough to have acquired valuable experience, yet young enough to be ready for a long term of service with us.

Seven Cylinder Machine for manufacturing Folding and Set-Up Boxboard, and Specialty Boards. Since the man we seek presently holds a good position and does not wish to jeopardize it, we want to assure all applicants that inquiries will be handled in strictest confidence. Therefore, please feel free to send complete references in your first letter, and address it to: "PRESIDENT ONLY," Box 53-302, c/o Paper Trade Journal.

A-21

### Finishing Superintendent Wanted

New Pulp Mill now under construction in the Northwest is in need of a man with experience operating a large fourdrinier machine. A heavy sulphite sheet for dissolving purposes will be produced. Applicant should have good practical experience with enough technical education for position. The job will also involve general overseeing of roll storage and sheet cutting. Excellent opportunity for a steady well paid position in a new mill for a man who can qualify.
Reply in writing, giving full personal data and experience to Box 53-281, c/o Paper Trade Journal. A-7

Immediate openings and excellent opportunity in our national sales organization for two young men. One must have technical training in manufacture of pulp and paper. Both require sales experience or sales inclination. Salary and traveling expenses. Reply should state clearly age, training and all experience leading to requirements indicated. All applications treated confidentially. Write to Box 53-275, care Paper Trade Journal.

J-31

## HELP WANTED

### ELECTRICAL ENGINEER WANTED

for new mill layout and design, must have pulp or paper mill experience handling power distribution, controls, metering, relaying and general layout work. Opportunity for permanent employment. Reply, giving full explanation of education and experience, to Box 53-292, c/o Paper Trade Journal. J-31

**WANTED**

THOROUGHLY EXPERIENCED MAN TO OPERATE AND SUPERVISE TOILET, NAPKIN AND TISSUE CONVERTING EQUIPMENT. LOCATION SUBURBAN NEW YORK CITY. PERMANENT RESPONSIBLE POSITION. SALARY OPEN. GIVE FULL DETAILS YOUR EXPERIENCE IN REPLY. ADDRESS BOX 53-290 CARE PAPER TRADE JOURNAL. A-28

### Graduate Chemical or Mechanical Engineer

for production engineering position on supervisory staff of paper board mill located in Indiana. Mill is unit of one of leading and nationally recognized paper board, carton and container manufacturing concerns. Unusual opportunity for aggressive young man to learn production and control methods. Advancement should be rapid, depending only upon the ability of the man to assume responsibility. Inherent supervisory ability important. Prefer man recently graduated from recognized engineering college. Please give details of background in first letter. Address Box 53-280 care Paper Trade Journal. J-31

**WANTED**

PURCHASING AGENT FAMILIAR WITH CORRUGATED CARTONS, FOLDING BOXES, PAPER OF VARIOUS KINDS, GLASSINE, KRAFT TISSUES, TO TAKE CHARGE PURCHASING FOR MEDIUM SIZE CONVERTING PLANT NEAR NEW YORK CITY. PERMANENT RESPONSIBLE POSITION. GIVE COMPLETE EXPERIENCE YOUR REPLY BOX 53-289 CARE PAPER TRADE JOURNAL. A-28

### PAPER CHEMIST OR CHEMICAL ENGINEER

by leading manufacturer of basic chemicals for product development work in pulp and paper field. 2-5 years actual experience in pulp or paper mill desired. Travel involved. Excellent opportunity for right man. Address Box 53-291 care Paper Trade Journal. A-7

### WANTED

Paper chemist capable of assisting in product development and demonstrating defoamers coating products, pitch dispersants, etc. Opportunity to work with long-established chemical firm now expanding in the paper industry. Must be available to travel extensively. Salary commensurate with ability. Give age, education, income requirements, etc., in letter. All replies strictly confidential. Our present personnel know of this advertisement Address Box 53-304 care Paper Trade Journal.

J-31

## HELP WANTED

### MAINTENANCE SUPERINTENDENT

Pulp and newsprint mill now under construction is developing its permanent organization and has need for Maintenance Superintendent. Will report to Chief Engineer and direct all maintenance functions through several Maintenance Foremen. Experience in supervision of maintenance activities in pulp and paper industry is essential. Address:

**Industrial Relations Department**
Bowaters Southern Paper Corporation
CALHOUN, TENNESSEE

J-31

**WANTED**

Qualified Experienced Superintendent for seven cylinder board machine located in Eastern Pennsylvania. Must have thorough knowledge of high quality folding boxboard. Give complete detailed resume of past experience and state salary desired. Replies will be kept confidential. Address Box 53-283 care Paper Trade Journal. A-7

## SITUATIONS WANTED

**SUPERINTENDENT-ASST. SUPT.**

25 years experience all types of bags including heat sealing, tailend printing, preprinting—all printing processes. Co-Ordinator between production and manufacturing. Consultant. Available after August 15th. Address Box 53-282 care Paper Trade Journal. A-7

**PAPER TECHNOLOGIST, EXPERIENCED IN DEVELOPMENT AND SALES —B.S. in Chemical Engineering. Over 20 years practical application in research, quality control, development, converting, technical sales. Excellent references. Desires position connected with technical development and sales. Box 53-298 PAPER TRADE JOURNAL.** A-14

SUPERINTENDENT—Twenty six years of practical experience manufacturing high grade folding box board, frozen food cartons, other sanitary food packages from sulphite, sulphate, groundwood, old paper stock. Aggressive, capable man. Excellent references. Address Box 53-199 care Paper Trade Journal. A-14

EXPERIENCED all around salesman, in industrial and resale promotions, wants aluminum foil and foil laminated products for the South on commission, as factory representative; principals only reply; fully protected territory required, direct and jobber sales. Address Box 53-287 care Paper Trade Journal. J-31

PLANT MANAGER—Paper and Board and their conversion. Highly successful record in organization; administration; development; labor relations; and high level production. Presently employed. Seeks challenging opportunity. Address Box 53-80 care Paper Trade Journal. J-31

ENGINEER—20 years experience in charge of paper mill expansion and modernization, seeks new position. Address Box 53-272 care Paper Trade Journal. J-31

ASSISTANT SUPERINTENDENT wishes to prove his ability as Superintendent in small mill. 24 years practical experience, on cylinder and Fourdrinier machines, making all grades of light cut tissues. Address Box 53-286 care Paper Trade Journal. A-7

SUPERINTENDENT — Paper Bag Plant Printing, Rewinding. Qualified by having actual experience. Successful record of plant operation. Middle age, good health, reference. Address Box 53-305 care Paper Trade Journal. A-21

## SITUATIONS WANTED

YOUNG ASS'T. SUPT. — Family man — 13 years experience on Fourdrinier Specialty machine running wide range of colors, grades, weights. 2 yrs. experience on singular cylinder twisting tissue machine running grades of bleached and unbleached Krafts in specialty colors. Wishing to return to Fourdrinier Machine. Address Box 53-299 care Paper Trade Journal. A-21

MILL MANAGER — SUPERINTENDENT. A practical paper maker with an engineering background, with ability to upgrade a mill producing cylinder products on modern high speed machines. Address Box 53-300 care Paper Trade Journal. A-14

MASTER MECHANIC—With 16 years experience installing and maintaining pulp, paper and converting equipment in Sulphite and Sulphate Mills. Experienced in crew organization and direction of all crafts, safety and training programs. Middle age. Good references. Address Box 53-301 care Paper Trade Journal. A-7

## FOR SALE

**FOR SALE**

**110" Hamblet Sheeter.**
**60" Finlay Sheeter.**
**40" Clark & 42" Finlay Sheeters.**
**48" Kidder model CH Slitter.**
**28" Hobbs shear cut Slitter.**

BACK-STANDS, ANY SIZE, MADE TO ORDER

**Thomas W. Hall Company, Inc.**
120 West 42nd St., New York 36
(Plant at Stamford, Conn.) TF

**FOR SALE**

**Immediate Delivery**

2—3 ft. x 8 ft. Type 300-I Surf Tyler Niagara. Screens. Stainless Steel construction. Complete with Drives and Flow Boxes.

3—2 ft. x 8 ft. Type 300-I Surf Tyler Niagara Screens. Stainless Steel construction. Complete with Drives and Flow Boxes.

3—Enclosed Agitator Drives with motors.

4—Steel Tanks Tile lined with Stainless Steel Covers and Agitators.

6—Vortraps with tanks.

8—Rotameters complete.

2—Tolhurst 26" Centrifuges. Stainless Steel. Direct connected to 5 H.P. motors.

ALL ABOVE EQUIPMENT USED 5 MONTHS.

**ROSS PAPER MACHINERY CO.**
**265 Passaic Street**
**Newark 4, New Jersey**
**HUMBOLDT 2-2177**

J-31

FOR SALE—80" Creper and Waxer complete with Steam Plant. All new equipment. Address Box 53-293 care Paper Trade Journal. TF

DEINKING, BLEACHING, WASTE PAPER PROBLEMS—Expert consulting services, laboratory facilities, available. Operational problems of existing plants; design of new plants; engineering; construction. In strictest confidence. Address Box 53-19 care Paper Trade Journal. TF

PAPER COATING MACHINERY MANUFACTURERS — Waxing, Oiling, Carbon Laboratory Coating and Treating and Flat Ream Measuring and Converting Machines. New improvement. THE MAYER MACHINE COMPANY, INC., 1313 Buffalo Road, Rochester, 11, N. Y. TF

TELEPHONE
HUMBOLDT 2-2177

CABLE ADDRESS: JACKROSS

# ROSS PAPER MACHINERY CO.

265 PASSAIC STREET
NEWARK 4, N. J.

CONVERTING
PAPER MAKING EQUIPMENT

NEW, USED, REBUILT
PAPER AND PULP MACHINERY

**AGITATOR DRIVES**

2—Cleveland enclosed—3 h.p. Ratio 24 to 1.
1—Foote Bros. enclosed—15 h.p. Ratio 33 to 1
2—Portereducer—size 40. Ratio 50-1, with 15 h.p., 1740 r.p.m. motor and controls.
1—Portereducer—size 20. Ratio 35-1, with 5 h.p., 1740 r.p.m. motor and controls.

**AIR HOIST**

1—5-ton Ingersoll-Rand with Trolley.

**BALERS**

1—Economy Baler—20¼ x 24 x 49
1—Economy Baler—60 x 32 x 96, with motor.

**BEATER FILLING**

1—New 54" Beater Filling with ⅜" bars, woods and bed plate.

**BLOWERS**

1—Sturtevant, Ball bearing, Size 7.
1—Sturtevant, Ball Bearing, Size 6.

**CALENDER ROLLS**

46—Chilled Iron Rolls—Assorted sizes.

**CALENDER STACKS**

1—Farrel Birmingham, 5 roll, 108" Calender with doctors, 2 rolls bored for steam.
1—Black Clawson 90" 7 roll with 2 spare rolls.
1—Pusey & Jones 88"—7 roll.

**CYLINDER MOLDS**

1—134" face x 36" diameter, with stainless steel shafts.
1—77" face x 48" dia.—Stainless Steel Shaft.

**DAMPENER**

1—Valley Micromist Unit for water finish on paper—120" deckle.

**DRIVES**

1—#3 Reeves anti-friction bearing.
1—Beloit enclosed drive right angle, ratio 3 to 1, with couplings and pulleys.
1—Falk enclosed drive, 100 H.P., ratio 5 to 1.
1—Link-Belt 40 h.p., ratio 2.2-1, 500 r.p.m.—227 r.p.m.
1—Cleveland enclosed drive right angle, 7 h.p.
1—#2 Reeves enclosed vertical drive.
3—#0 Reeves Drives—horizontal type.
1—#6 Reeves vertical, ball bearing.
1—Lewellyn, 20 h.p., totally enclosed. Horizontal class C-6-1.

**DRYERS**

17—160" face x 48" diameter.
2—160" face x 36" diameter.
1—130" face x 48" diameter.
16—127" face x 42" diameter.
1—126" face x 48" diameter.
1—124" face x 48" diameter.
1—116" face x 48" diameter.
1—116" face x 36" diameter, with gears and bearings.
1—110" face x 42" diameter, with bearings.
1—104" face x 36" diameter.
2—103" face x 48" diameter.
1—102" face x 48" diameter, with bearings.
1—86" face x 36" diameter, with frames, gears and bearings.
3—88" face x 36" diameter, with frames, gears and bearings.
39—46" face x 48" diameter, with gears, bearings and steam joints.
8—42" face x 36" diameter, with frames, gears and bearings.

**DYNAPULPER**

1—Rice Barton 11 ft. Dynapulper, with 54" diameter impellers. Requires 50 HP motor.

**FILTERS**

1—Oliver Vacuum Filter, 10' face x 5' 3" diameter. Steel vat.

**FLAT SCREENS**

3—8 plate Sandy Hill Roller Shoe.
2—Bagley & Sewall 8 plate.

**FOURDRINIER WIRES**

3—New Lindsay 76" x 47 ft. 10"—60 mesh.

**HYDRAULIC PRESS**

1—Thorpe 200 ton. Steam platens, 40" x 40" with pump.

**JORDANS**

1—#6 Miami, for motor drive.
1—Jones Majestic Stainless Steel Filling.
2—E. D. Jones Pony, 3/16" stainless steel fillings—banded plugs, spare new fillings.
1—Smith & Winchester Standard with granite fillings.

**KAMYR WET END**

1—Kamyr Wet End. Cylinder 59" diameter x 80" face. Steel vat—rubber couches—spare rolls and spare parts.

**KNIFE GRINDER**

1—100" Hanchett Knife Grinder with motor.
1—130" Hanchett, complete with Coolant Pump, 2 spare wheels and motor.

**LABORATORY EQUIPMENT**

1—Watson Stillman Hydraulic Press 12" x 12" platens, 5½" daylight opening.
1—New Sperry 12" Filter Press—10 plate.
1—Rice Barton 5 lb. stainless steel Dynapulper, with electric heater. For Sale or For Rent.

**MOTORS**

1—Allis Chalmers 30 h.p., 440 v., 660 r.p.m.
1—General Electric—25 h.p.—230 volts—3 ph—60 cycle—300/900 r.p.m.
25 other 440 v motors from 2 h.p. to 15 h.p.

**PULP EQUIPMENT**

1—APMEW Ball Bearing Pulp Screens—30 ton capacity—outward flow.
1—D. J. Murray 10' x 25' Barking Drum.

**PULPERS**

2—#2 Lannoye.

**PUMPS**

44—Centrifugal Pumps, open & closed impellers. Direct connected or Belt Driven. Extended base for motor. Assorted capacities and heads. Most used less than one year.

**REELS**

1—Pusey & Jones 162" drum reel, complete with unwind stand and water cooled brake.
1—98" face x 24" diameter Drum Reel. Will rewind 40".
1—Holyoke 44". Will wind 38" diameter rolls.
1—Downingtown 104" 2 bowl Reel, complete with drive and adjusting devices.

**REFINERS**

2—#1 Claflin Refiners—ball bearing.
1—Dilts Hydrafiner with GE 150 h.p., 1800 r.p.m. motor and controls.

**ROLL GRINDER**

1—Lobdell 18' Roll Grinder handles 26" maximum diameter rolls.

**ROLLS—PRESS, COUCH, etc.**

32—Press rolls, brass and rubber covered.
14—Couch rolls, brass and rubber covered.
250—Brass and steel carrying rolls.

**ROTARY DIGESTER**

1—New Biggs 12½ ft. Rotary with drive—100# pressure.

**ROTARY SCREENS**

2—#2 Bird—Copper vat.
1—#2A Bird with copper vats.

**SAVEALLS**

1—Bird #5 with enclosed drive and 3 h.p. motor.
1—Sandy Hill, stainless steel. Cylinder 100" face x 60" diameter. 18" diameter rubber couch.
2—Bird #6A, complete, including motors. Anti friction bearings throughout.

**SCREW PRESSES**

1—Valley Voith Screw Press, size 2.

**SHEETERS**

1—Hamblet 124" Duplex Sheeter with Maxson layboy—6 roll backstand—motor and starter.
1—Moore & White Simplex 114" Sheeter with slitters—counter. Maxson layboy overlapping delivery. 8 roll backstand, motor and starter.
1—Hamblet 46" Single Knife.

**SHREDDERS**

1—American 37" Hammermill, anti-friction bearing.
1—Jeffrey, 26¼" knives, 7 knife rotor, 6 knife bed plate. Ball bearing.

**SLICE**

1—Beloit 132" adjustable slice, complete, including stands. Slice is of all bronze construction. Operated 1000 feet per minute.

**SLITTERS AND WINDERS**

1—Beloit 125" Paper Machine Slitter and Rewinder—42" rewind.
1—Hudson Sharp 60" Wax Paper Automatic Slitter and Rewinder.
1—Cameron 62"—Model 6.
1—Cameron 52"—Model 9-5-A.
1—Cameron 52"—Model 10-5. 30" Maximum rewind.
1—Cameron 72"—Model 10-5. 30" Maximum rewind. 1500 FPM Speed.
1—Langston 106"—anti friction bearings, Texrope drive, 38" rewind.
1—Cameron 156" Type 18—anti friction bearings, 42" rewind.

**SMOOTHING PRESSES**

2—New Farrel Birmingham 108" face x 24" diameter. Rubber covered, with ball bearings and enclosed drives.

**STEAM TURBINES**

1—De Laval 225 h.p. Initial pressure 140 p.s.i. Exhaust pressure 35 p.s.i. Complete with gear reducer.
1—De Laval Variable Speed—325 h.p. at 135 gauge and 30 p.s.i. exhaust. Complete with gear reducer.

**STOCK PUMPS**

1—Shartle 10 x 20 Single Plunger Pump.
2—Beloit 8 x 10 Triplex.
2—Shartle Agi-flo, 13" suction, 14" and 4" discharge. Anti-friction bearings.
1—Moore & White 10 x 16 Triplex.
1—Moore & White 8 x 8 Triplex.

**SUCTION BOXES**

6—Brass Suction Boxes, 156" x 4" opening.

**SUCTION COUCH ROLLS**

1—Millspaugh 36" diameter x 234" drilled face with enclosed drive, water cooled bearings. 12" suction boxes.
1—Millspaugh 156" drilled face x 22" diameter Suction Couch. Operated at 1000 ft. per minute.
1—Sandusky Suction Couch, 25" diameter x 122" drilled face.
1—Beloit 25" diameter x 103" drilled face, anti friction bearing.

**SUCTION FELT ROLL**

1—New Downingtown 186" drilled face x 16" diameter, with anti friction bearings and stands.

**SUCTION PRESS ROLLS**

1—Sandusky 84" drilled face x 22" diameter, rebuilt.

**SUPERCALENDER STACK**

1—Norwood 60" 10 roll, complete with motors.

**THICKENER**

1—IMPCO 5 ft. diameter Vacuum Thickener. 80" face with steel vat and spare couches. Used 3 years.

**TOILET ROLL WINDERS**

1—Hudson Sharp Model 20-B.
2—Hudson Sharp Model 50-B.

**TOILET TISSUE PERFORATOR**

1—Paper Converting Machine Co. Model 141 automatic 81" Perforator, ball bearing.

**TRIMMERS**

1—Seybold 64"—20th Century.
1—Howard 44"—Downstroke type.
1—Seybold 48" Dayton with motor.
1—Seybold 45"—20th Century.
1—Seybold 84" Model 12 ZH, with power back gauge and motor.

**VACUUM PUMPS**

2—Nash ¾ H-5 Vacuum Pumps.
1—Nash K-4 with new rotor.
1—Nash K-5.
2—#8 Nash Hytor.
1—Connersville 2.1 cu.ft. per rev. With base.
2—Connersville 1.65 cu.ft. per rev. With base.
1—Connersville .75 cu.ft. per rev. With base.
1—Connersville Type RSB. With base.
2—Oliver Vacuum Pumps 14" x 8". 10" to 15" vacuum at 150 to 300 rpm.

**VOITH INLETS**

2—Valley Iron Voith Inlets, adjustable 83" to 86"—brass lip, stainless steel apron.
1—Valley Iron Voith Inlet 156", with motor drive, brass construction. Operated at 1000 ft. per minute.

**VORTRAPS**

12—4" Stainless Steel with rubber lined heads. 3" Hills McCanna Valves and stainless steel headers. Completely rebuilt.
4—New all bronze 4" Vortraps.
2—3" stainless steel, with valves.
1—1½" stainless steel, with valves.
2—Stainless Steel Vortrap Capacity Tanks.

**WET MACHINES**

1—Rogers 72" double press Wet Machine, 48" diameter cylinder mold—with rubber couch.
1—Rogers 96" double press Wet Machine, 48" diameter cylinder—rubber couch, spare new top and bottom felts.

# FOR SALE

**Hardwood Pulp Mill, in entirety or as individual items, 72" trim Pulp Machine.**

2 cylinder moulds with vats
2 couch rolls
Suction couch
First press 24" rolls
Second press 18" rolls
39 dryers
2 bowl reel
4 drum winder
Drive, line shaft, pulleys
Foundation plate

***Also included:—***

3 Rotary Digesters 7' x 19' with drive, used six months.
Green Bay Saveall
No. 4 Shartle Hydrafiner with motor
Dilts bandless beater 56x48" with cast iron tub
Impco re-pulper
2—8x6 Oliver filters, stainless steel heads and wire.
2—8x4 Oliver filters, stainless steel heads and wire.
4 Bird consistency regulators, new
3—5 HP Reeves motor drives
Wallace Tiernan chlorinator
Impco chemical mixer
2 Foote agitator drives, 6—90—150 with 15 HP motors
2 Foote agitator drives, 10—HGV—with 15 HP motors
Buffalo limit load exhauster, size six, class I.
Sturtevant blower No. 281181, with 220-440 volt motor
Sutor belt vacuum pump with motor
2 vacuum receivers
2 Frederick centrifugal pumps 200 GPM, 100 ft. head with motors
1 Frederick centrifugal pump 150 GPM, 25 ft. head with motor
Size 2½ Gardner Denver centrifugal pump with motor

## FRANK H. DAVIS COMPANY

**175 RICHDALE AVENUE** **CAMBRIDGE 40, MASS.**

TF

## CHEMIPULP PROCESS INC.

500 WOOLWORTH BUILDING WATERTOWN, NEW YORK

***CHEMICAL PULPING PROCESS***

Hot Acid Cooking and Recovery Systems
Chemipulp—K-C Digester Circulating Systems
Chemipulp—K-C Improved Acid Plants
Digester Waste Liquor $SO_2$ Gas and Heat Recovery
Chip Pretreatment Preparatory to Cooking

*Associated with*

**CHEMIPULP PROCESS LTD.**
403 CRESCENT BUILDING MONTREAL, P. Q.

***Pacific Coast Representative***
**A. H. LUNDBERG**
308 ORPHEUM BUILDING SEATTLE 1, WASH.

**BUY**

**U. S. DEFENSE BONDS**

**J. E. SIRRINE CO.**
**Greenville, South Carolina**
*Engineers*
Established 1902

PAPER & PULP MILLS • WASTE DISPOSAL • TEXTILE MILLS • APPRAISALS • WATER PLANS • STEAM UTILIZATION • STEAM POWER PLANTS • HYDRO-ELECTRIC • REPORTS

CLEARING HOUSE ADS BRING GOOD RESULTS

## FOR SALE

2—Complete single cylinder Machines.

**86" Trim**

48" dia. mold and vat Suction drum roll, 2 main presses, Smooth Press. 41—36" dia. dryers, 2 calender stacks, Beloit reel, Slitter and Winder..

**72" Trim**

48" dia. mold and vat, Suction drum roll, 2 main presses, Smooth Press. 35—36" dia. dryers, 2 calender stacks, Beloit reel, Slitter and Winder.

**BLACK-CLAWSON COMPANY**
Shartle Brothers Machine Division
Used Equipment Dept.
Middletown, Ohio

J-31

FOR SALE—Garment Bag Machine. Like new. Address Box 53-294 care Paper Trade Journal. TF

## FOR SALE

One 60 quart Mixer complete with one bowl, one beater and one whip.

White - Bennett Limited, Fort Chambly, Quebec, Canada.

J-31

# FOR SALE

## CAMERON SLITTERS

1—58½" Type 26-3A.
1—42" Type 26-2A.
1—40" and 62" Type 6.
1—52" and 62" Type 10-5A.
1—52" Type 9-5.
1—62" Type 8-5.
4—62" Type 40-1-AF.
1—42" and 62" Type 10-5.
3—72" Type 10-11 Shear-cut.

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1—87" Langston Type BA Shear-cut. 60" Max. Rewind.
1—60" Meisel Series OP-1, Shear-cut.
1—48" Kidder Model CH Shear-cut.
1—60" Langston Type AA, Shear-cut and 1—40" and 50" Duplex Shear-cut.
1—40" Beck Razor Blade Type.
1—56" Chambon, Shear-cut.
1—30" Model B Fales Slitter.
1—40" Kidder Model SL Shear-cut.
1—63" Goebel Rapid U Type Shearcut.
1—32" Goebel Center Wind Shearcut.

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3—Smith & Winchester Undercut, 63", 69" and 84".

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1—15" x 17" Model B Speedflex Press.
1—14" and one 15" 5 color Champlain, unit type, Rotogravure Presses.
1—30" Flexographic Tailprinter.
1—39" Heinrich Flexographic Two Side Coating Machine with Dryer.

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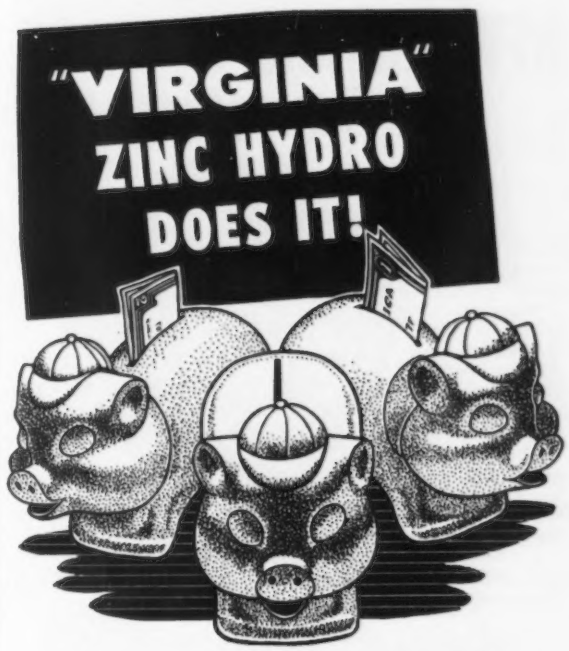


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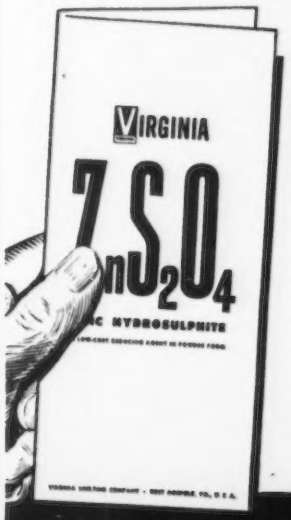


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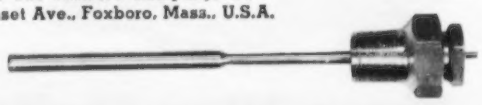

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General Dyestuff Corp.
Monsanto Chemical Company
National Aluminate Corp.
Nopco Chemical Co.
Wyandotte Chemicals Corp., Michigan Alkali Div.

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Lodding Engineering Corp.
The Moore & White Co.
Rice Barton Corporation
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.

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The Moore & White Co.
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Shartle Brothers Machine Co.
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Black Clawson Company
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Lukenweld
The Moore & White Co.
Murray Mfg. Co., D. J.
J. J. Ross Company
Red-Ray Mfg. Co., Inc.
Rice Barton Corporation
Ross Paper Machy. Co.
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.
Valley Iron Works Co.

**DRIERS—LABORATORY**
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**DRILLED SUCTION COUCH ROLLS**
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Manchester Machine Co.

**DRILLED SUCTION DRUM ROLLS**
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Manchester Machine Co.

**DRIVES**
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Beloit Iron Works
Bird Machine Co.
Black Clawson Company
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Downingtown Mfg. Co.
Farrel-Birmingham Co.
Jeffrey Mfg. Co.
General Electric Company
Gibbs-Brower Company, Inc.
Link Belt Co.
Manchester Machine Co.
Moore & White Co.
Murray, D. J., Mfg. Co.
Pusey & Jones Corp.
Rice Barton Corporation
J. J. Ross Company
Ross Paper Machy. Corp.
The Sandy Hill Iron & Brass Works
Shartle Bros. Mch. Co.
Valley Iron Works Co.

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**DRYER ROLL PYROMETER**
Midwest Fulton Mch. Co.
Testing Machines, Inc.
Thwing-Albert Instrument Co.

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Moore & White Co.
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Waldron, John, Corp.

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Ciba Company
E. I. du Pont de Nemours & Co., Inc.
Geigy Co., The

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Testing Machines, Inc.

**ELECTRIC HYGROMETER**
Thwing-Albert Instrument Co.

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Paper Converting Machine Co.
John Waldron Corp.

**EMBOSSING ROLLS**
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Gibbs-Brower Company, Inc.
Holyoke Machine Co.
B. F. Perkins & Son, Inc.
John Waldron Corp.

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Nopco Chemical Co.
Wyandotte Chemicals Corp.

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Vanderbilt Co., R. T.

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Swenson Evaporator Co., Div. of Whiting Corp.
Westinghouse Electric Corp.

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Moore & White Co.
The Noble & Wood Machine Co
Mount Hope Machinery Co.
Rice Barton Corporation
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.
Waldron Corp., John

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**FIBRE BOARD MACHINES**
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Hungerford & Terry, Inc.
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J. O. Ross Engrg. Corp.
The Sandy Hill Iron & Brass Works
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Bird Machine Company

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Crane Company
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Hermann Mfg. Co.
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Black Clawson Company
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Downingtown Mfg. Co.
Gibbs-Brower Company, Inc.
Johnson Corp.
Moore & White Co.
Nash Engineering Co.
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The Bagley & Sewall Company
Beloit Iron Works
Black Clawson Company
Dilts Machine Works (Kohler Systems)
Egan, Frank W., & Co.
Downingtown Mfg. Co.
Hudson-Sharp Mch. Co.
Manchester Machine Co.
Moore & White Co.
Rice Barton Corporation
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.
The Smith & Winchester Mfg. Co.
Waldron, John, Corp.

**REFINERS**
Appleton Machine Co.
Bahr Brothers Mfg. Co.
Bauer Brothers Co.
Curlator Corp.
Dilts Machine Works
Downingtown Mfg. Co.
Gibbs-Brower Company, Inc.
Hermann Mfg. Co.
Jackson & Church Co.
E. D. Jones & Sons Co.
Morden Machines Co.
Murray, D. J., Mfg. Co.
Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.
Sutherland Refiner Corp.
Valley Iron Works

**REFRACTORIES**
Harbison-Walker Refractories Co.

**REGULATORS**
Apmew, Inc.
Bird Machine Company
General Electric Co.
Improved Machinery Inc.
Johnson Corp.
Poirier Control Company
Shartle Brothers Machine Co.
Taylor Instrument Companies
Westinghouse Electric Corp.

**RESINS**
American Cyanamid Company, Plastics & Resins Division
Borden Company
The Dow Chemical Company
B. F. Goodrich Chemical Co.
The Goodyear Tire & Rubber Company
Hercules Powder Co.
Koppers Company, Inc.
Monsanto Chemical Company
Naugatuck Chemical Division of U. S. Rubber Co.
Nopco Chemical Co.
Reichhold Chemicals, Inc.

**ROLLS**
Appleton Machine Co.
The Bagley & Sewall Company
Beloit Iron Works
Black Clawson Company
Dilts Machine Works
Downingtown Mfg. Co.
Frank W. Egan & Co.
Emerson Mfg. Co.
Farrel-Birmingham Co.
Gibbs-Brower Company, Inc.
B. F. Goodrich Co.
Holyoke Machine Co.
Lindsay Wire Weaving Co.
Lobdell United Co.
Manchester Machine Co.
The Moore & White Co.
D. J. Murray Mfg. Co.
Perkins, B. F., & Sons Co.
Pusey & Jones Corp.
J. J. Ross Company
Rice Barton Corporation
Ross Paper Machy. Co.
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.
Smith & Winchester Mfg. Co.
U. S. Rubber Co.
Valley Iron Works Co.
Waldron Corp., John

**ROLL COVERS**
The Goodyear Tire & Rubber Company

**ROLL HANDLING EQUIPMENT**
Dilts Machine Works

**ROLL STANDS**
Cameron Machine Co.
Dilts Machine Works
Frank W. Egan & Co.
Moore & White Co.
The Sandy Hill Iron & Brass Works
John Waldron Corp.
H. G. Weber & Co., Inc.

**ROPE CARRIERS**
Black Clawson Co.
Downingtown Mfg. Co.
The Moore & White Co.
Rice Barton Corporation
The Sandy Hill Iron & Brass Works

**ROTARY KILNS**
F. L. Smidth & Co.

**ROTARY SCREENS**
Bird Machine Company
Chas. Mundt & Sons

**ROTARY STEAM JOINTS**
Johnson Corp.
The Moore & White Co.
Rice Barton Corporation
Sandy Hill Iron & Brass Works
Shartle Bros. Mch. Co.

**RUBBER PRODUCTS**
B. F. Goodrich Co.
The Goodyear Tire & Rubber Company

**SAMPLE CUTTER**
Testing Machines, Inc.
Thwing-Albert Instrument Co.

**SATURANTS**
B. F. Goodrich Chemical Co.

**SATURATING MACHINES**
Dilts Machine Works
Frank W. Egar & Co.
Gibbs-Brower Company, Inc.
Moore & White Co.
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.
Waldron Corp., John
Weber, Herman G.

**SAVEALLS**
Bird Machine Company
Bulkley, Dunton Processes, Inc.
Chicago Bridge & Iron Co.
Improved Paper Machinery Corp.
Moore & White Co.

**SAWS**
Simonds Saw & Steel Co.
Moore & White Co.

**SCALES**
Merrick Scale Mfg. Co.
Testing Machines, Inc.

**SCREEN PLATES**
Bird Machine Company
Fitchburg Screen Plate Co.
Magnus Metal Corp.
Morey Paper Mill Supply Co.
Mundt, Chas. & Sons
Testing Machines, Inc.

**SCREENS**
Appleton Wire Works
Appleton Machine Company
The Bagley & Sewall Company
Bird Machine Company
Carthage Machine Co.
Dilts Machine Works, Inc.
Downingtown Mfg. Co.
Gibbs-Brower Company, Inc.
E. D. Jones & Sons Co.
Moore & White Co.
Mundt, Chas. & Sons
D. J. Murray Mfg. Co.
J. J. Ross Company
Ross Paper Machy. Co.
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.
Valley Iron Works Co.

**SCREENS, CHIP (Vibrating)**
Link Belt Co.

**SCREENS (Perforated)**
Mundt, Chas., & Sons

**SCREENS (Rotary)**
Bird Machine Company
Mundt Chas., & Sons

**SHAKES**
Downingtown Mfg. Co.

**SHAKE STICKS**
Westinghouse Electric Corp.

**SHEET MACHINES**
Downingtown Mfg. Co.
Gibbs-Brower Company, Inc.
Thomas W. Hall Co.
Hermann Mfg. Co.
Testing Machines, Inc.
Valley Iron Works Co.

**SHOWER PIPES**
Bird Machine Company
Black-Clawson Company
Downingtown Mfg. Co.
Emerson Mfg. Co.
Moore & White Co.
Sandy Hill Iron & Brass Works
Sandusky Fdy. & Mch. Co.
Shartle Brothers Machine Co.
Smith & Winchester Mfg. Co.

**SHREDDERS**
Bauer Brothers Co.
Carthage Machine Co.
Gibbs-Brower Company, Inc.
Jackson & Church Co.
Jeffrey Mfg. Co.

**SIZE PRESSES**
Black-Clawson Co.
Downingtown Mfg. Co.
Manchester Machine Co.
Moore & White Co.
Rice Barton Corporation
Sandy Hill Iron & Brass Works

**SIZING**
American Bitumuls & Asphalt Co.
American Cyanamid Company, Industrial Chemicals Division
The Dow Chemical Company
du Pont, E. I., de Nemours & Co.
Glidden Company
Hercules Powder Co.
The Hubinger Co.
Monsanto Chemical Company
National Aluminate Corp.
Nopco Chemical Co.
Wyandotte Chemicals Corp., Michigan Alkali Div.

**SIZING TESTER**
W. & L. E. Gurley
Testing Machines, Inc.
Thwing-Albert Instrument Co.

**SLIME CONTROL**
The Dow Chemical Company
E. I. du Pont de Nemours & Co.
General Dyestuff Corp.
Magnuson Products Corp.
Monsanto Chemical Co.
National Aluminate Corp.
Vanderbilt Co., R. T.
Wyandotte Chemicals Corp., Michigan Alakli Div.

**SLITTERS**
The Bagley & Sewall Company
Black-Clawson Company
Cameron Machine Co.
Carthage Machine Co.
Dietz Machine Works
Dilts Machine Works
Downingtown Mfg. Co.
Frank W. Egan & Co.
Gibbs-Brower Company, Inc.
Thomas W. Hall Co., Inc.
Hamblet Machine Co.
Hudson-Sharp Mch. Co.
Improved Machinery Inc.
Langston Co., Samuel M.
Moore & White Co.
D. J. Murray Mfg. Co.
Paper Converting Machine Co.
Rice Barton Corporation
J. J. Ross Company
Ross Paper Machy. Co.
The Sandy Hill Iron & Brass Works
Smith & Winchester Mfg. Co.
Valley Iron Works Co.
Waldron Corp., John

**SMOKE STACKS**
Chicago Bridge & Iron Co.

**SOFTNESS-STIFFNESS TESTER**
W. & L. E. Gurley
Testing Machines, Inc.
Thwing-Albert Instrument Co.

**SOLUBLE OILS**
American Cyanamid Company, Industrial Chemicals Division
General Dyestuffs Corp.
Nopco Chemical Co.

**SPECIAL MACHINERY**
Dilts Machine Works
Downingtown Mfg. Co.
Egan, Frank W., & Co.
Jackson & Church Co.
Manchester Machine Co.
Moore & White Co.
Paper Converting Machine Co.
Rice Barton Corporation
The Sandy Hill Iron & Brass Works
Waldron, John, Corp

**SPEED REDUCERS**
Dodge Manufacturing Corp.
Downingtown Mfg. Co.
Link Belt Co.
Westinghouse Elec. Corp.

**SPLICING TISSUE**
Williams-Gray Co.

**STAINLESS STEEL**
Armco Steel Corp.
Crucible Steel Co.
U. S. Steel Corp.

**STARCH**
Clinton Foods, Inc.
Corn Products Sales Co.
The Hubinger Co.
National Starch Products, Inc.

**STEAM JET EJECTORS**
Elliott Company, Inc.

**STEAM JOINTS**
The Moore & White Co.
Rice Barton Corporation
Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.

**STEAM SPECIALTIES**
Babcock & Wilcox Co.
Johnson Corp.

**STEEL**
Armco Steel Corp.
Carnegie Illinois Steel Co.
Crucible Steel Co.
Lukens Steel Company
D. J. Murray Mfg. Co.
The Sandy Hill Iron & Brass Works
U. S. Steel Corp.

**STEEL, CLAD**
Babcock & Wilcox Co.
Lukens Steel Company

**STEEL TANKS**
Chicago Bridge & Iron Co.
Jackson & Church Co.
The Sandy Hill Iron & Brass Works

**STOKERS**
Westinghouse Elec. Corp.

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Mundt, Chas., & Sons

**STRAINERS**
Elliott Company, Inc.

**STRETCH TESTER**
Testing Machines, Inc.
Thwing-Albert Instrument Co.

**STUFF CHESTS**
Downingtown Mfg. Co.
E. D. Jones & Sons Co.
Moore & White Co.
Rice Barton Corporation
Shartle Brothers Machine Co.
Valley Iron Works Co.

**SUCTION BOX COVERS**
Appleton Wood Products
Emerson Mfg. Co.
Moore & White Co.
Mundt, Chas., & Sons
Westinghouse Electric Corp.

**SUCTION BOXES**
Beloit Iron Works
Black-Clawson Company
Downingtown Mfg. Co.
E. D. Jones & Son Co.
Manchester Machine Co.
Moore & White Co.
Rice Barton Corporation
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.

**SUCTION ROLLS**
Beloit Iron Works
Downingtown Mfg. Co.
Manchester Machine Co.

**SULPHUR**
Texas Gulf Sulphur Co.

**SULPHUR BURNERS**
Valley Iron Works Co.

**SULPHUR DIOXIDE**
Virginia Smelting Co.

**SUPERCALENDERS**
The Appleton Machine Co.
B. F. Perkins & Son, Inc.

**SWITCHGEAR**
Westinghouse Elec. Corp.

**SYNTHETIC LATICES**
American Cyanamid Company, Industrial Chemicals Division
B. F. Goodrich Chemical Co.
The Goodyear Tire & Rubber Company
Naugatuck Chemical Division of U. S. Rubber Co.
Nopco Chemical Co.

**SYNTHETIC RESINS**
American Cyanamid Co., Ind. Chem. Div.
Hercules Powder Co., Inc.

**SYPHONS**
Poirier Control Company

**TAILING SCREENS**
Mundt, Chas., & Sons
Sandy Hill Iron & Brass Works

**TAKE OFF UNITS**
Dilts Machine Works (Kohler Systems)

**TALC**
American Cyanamid Company, Industrial Chemicals Division
Vanderbilt Co., R. T.

**TANKS**
Chicago Bridge & Iron Co.
B. F. Perkins & Sons, Inc.
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.
Stebbins Engrg. Co.

**TEARING TESTERS**
Thwing-Albert Instrument Co.
Testing Machines, Inc.

**TENSILE TESTERS**
Thwing-Albert Instrument Co.
B. F. Perkins & Son, Inc.
Scott Testers, Inc.
Testing Machines, Inc.
A. van der Korput

**THICKENERS, DECKERS AND SAVEALLS**
The Appleton Machine Co.
Bird Machine Company
Bulkley, Dunton Processes, Inc.
Carthage Machine Co.
Chicago Bridge & Iron Co.
Dilts Machine Works
Downingtown Mfg. Co.
Improved Machinery Inc.
Moore & White Co.
D. J. Murray Mfg. Co.
Ross Paper Machinery Corp.
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.
Valley Iron Works Co.

**THICKENER SCREENS**
Mundt, Chas., & Sons

**TITANIUM**
E. I. du Pont de Nemours & Co.
Titanium Pigment Co.
R. T. Vanderbilt Co.

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Walworth Company

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Elwell Parker Elec. Co.
Towmotor Corp.

**TRANSFORMERS**
Westinghouse Elec. Corp.

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Johnson Corporation
Shartle Brothers Machine Co.

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Elliott Company, Inc.

**TUBE MILLS**
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**TUBES**
Babcock & Wilcox Co.
Crucible Steel Co.
National Tube Co.

**TUBING MACHINES**
Dilts Machine Works

**TUBING, MECHANICAL**
National Tube Co.

**TURBINES**
De Laval Turbine Co.
Elliott Company, Inc.
General Electric Company
James Leffel Co.
Westinghouse Electric Corp.

**UNWINDERS**
Dilts Machine Works (Kohler Systems)
Downingtown Mfg. Co.
Egan, Frank W., & Co.
Moore & White Co.
Rice Barton Corporation
Waldron, John, Corp.

**USED EQUIPMENT**
Gibbs-Brower Co.
Thomas W. Hall Co.
J. J. Ross Company
Ross Paper Machinery Co.
Shartle Brothers Machine Co.

**V-BELTS**
Dodge Mfg. Corp.
Goodrich, B. F., Company, Inc.

**VALVES**
The Bagley & Sewall Company
Crane Company
DeZurik Shower Co.
Dilts Machine Works
Downingtown Mfg. Co.
Grinnell Company
E. D. Jones & Sons Co.
Magnus Metal Corp.
D. J. Murray Mfg. Co.
William Powell Co.
Record Fdy. & Mch. Co.
Rice Barton Research Corp.
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.
Valley Iron Works Co.
Walworth Company

**VAPOR BARRIER COATINGS**
Insul-Mastic Corp. of America

**VATS**
Biggs Boiler Works Co.
Black-Clawson Co.
Beloit Iron Works
Downingtown Mfg. Co.
Moore & White Co.
Rice Barton Corporation
Sandy Hill Iron & Brass Works

**WASHERS**
The Bagley & Sewall Company
Downingtown Mfg. Co.
Gibbs-Brower Company, Inc.
Improved Machinery Inc.
Jackson & Church Co.
E. D. Jones & Sons Co.
Moore & White Co.
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.
Valley Iron Works Co.

**WASTE CONVEYOR SCREENS**
Mundt, Chas., & Sons

**WASTE TREATING EQUIPMENT**
Hungerford & Terry, Inc.
Jeffrey Mfg. Co.
Link Belt Co.

**WATER CONDITIONING**
Calgon, Inc.
General Dyestuff Corp.
Hungerford & Terry, Inc.
National Aluminate Corp.
Palmer Filter Equipt. Co.
The Sandy Hill Iron & Brass Works

**WATER DISPERSIONS**
American Cyanamid Company Industrial Chemicals Division
Naugatuck Chemical Division of U. S. Rubber Co.

**WATER FILTERS**
Bird Machine Co.
Holyoke Machine Co.
Hungerford & Terry, Inc.
Improved Machinery Inc.
Sandy Hill Iron & Brass Works

**WATER PENETRATION TESTER**
Testing Machines, Inc.
Thwing-Albert Instrument Co.
Williams Apparatus Co., Inc.

**WATER SOFTENERS**
Hungerford & Terry, Inc.
Wynadotte Chemicals Corp. Michigan Alkali Div.

**WATER TREATING EQUIPMENT**
Hungerford & Terry, Inc.

**WATER VAPOR CUPS**
Testing Machines, Inc.
Thwing-Albert Instrument Co.

**WATER WHEELS**
James Leffel Co.

**WAXING MACHINERY**
Black-Clawson Company
Dilts Machine Works
Frank W. Egan & Co.
Gibbs-Brower Company, Inc.
The Mayer Machine Co.
Moore & White Co.
Paper Converting Machine Co.
Shartle Brothers Machine Co.
Waldron Corp., John
Weber, Herman G.

**WEB TENSION CONTROL**
Dilts Machine Works (Kohler Systems)
Egan, Frank W., & Co.
Waldron, John, Corp.

**WELDING EQUIPMENT**
General Electric Company
Walworth Company
Westinghouse Electric Corp.

**WELDING FITTINGS**
Pittsburgh Piping & Equipt. Co.

**WET MACHINES**
The Bagley & Sewall Company
Black-Clawson Company
Carthage Machine Co.
Dowingtown Mfg. Co.
Improved Machinery Inc.
Moore & White Co.
Pusey & Jones Corp.
Rice Barton Corporation
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.
Smith & Winchester Mfg. Co.
Valley Iron Works Co.

**WET STRENGTHENING AGENTS**
American Cyanamid Company Industrial Chemicals Division
Hercules Powder Co., Inc.
Reichhold Chemicals, Inc.

**WETTING AGENTS**
American Cyanamid Company Industrial Chemicals Division
Diamond Alkali Co.
General Dyestuff Corp.
Monsanto Chemical Company
Nopco Chemical Co.
Wyandotte Chemicals Corp. Michigan Alkali Div.

**WHITE WATER TREATING EQUIPT.**
Bird Machine Co.
Bulkley, Dunton Processes, Inc.
Hungerford & Terry, Inc.
The Sandy Hill Iron & Brass Works

**WINDERS & REWINDERS**
The Appleton Machine Co.
The Bagley & Sewall Company
Beloit Iron Works
Black-Clawson Company
Cameron Machine Co.
Dietz Machine Works
Dilts Machine Works (Kohler Systems)
Downingtown Mfg. Co.
Frank W. Egan & Co.
Gibbs-Brower Company, Inc.
Thomas W. Hall Co.
Hudson-Sharp Machine Co.
Langston Co., Samuel M.
Manchester Machine Co.
Moore & White Co.
Paper Converting Machine Co.
Pusey & Jones Corp.
Rice Barton Corporation
Ross Paper Machinery Co.
The Sandy Hill Iron & Brass Works
Smith & Winchester Mfg. Co.
Waldron, John, Corp.

**WINDING ROLL CHANGERS**
Dilts Machine Works
Egan, Frank W., & Co.
Waldron, John, Corp.

**WIRE BRUSHES**
M. W. Jenkins Sons, Inc.
Williams-Gray Co.

**WIRE GUIDES**
Black-Clawson Company
Gilbert & Nash
Moore & White Co.

**WIRES**
Appleton Wire Works
International Wire Works
Lindsay Wire Weaving Co.
Williams-Gray Co.
Wisconsin Wire Works

**WOOD SPLITTERS**
The Appleton Machine Co.
Carthage Machine Co.
Manchester Machine Co.
Moore & White Co.

# PAPER TRADE JOURNAL INDEX TO ADVERTISERS PAPER TRADE JOURNAL


A

Amercoat Corp. —
American Bitumuls & Asphalt Co. —
American Cyanamid Co., Industrial Chemicals Div. —
American Steel & Wire Co. —
Antara Chem. Div., General Dyestuff Corp. —
Anthracite Equipt. Corp. —
Apmew, Inc. —
Appleton Machine Co., The —
Appleton Wire Works, Inc. —
Appleton Woolen Mills —
Armco Drainage & Metal Products —
Armco Steel Corp. —
Armstrong Machine Works —
Asten-Hill Mfg. Co. —

B

Babcock & Wilcox Co. —
Bagley & Sewall Co. —
Bahr Bros. Mfg Co. —
Bailey Meter Co. —
Barrell, Wm. L., Co. —
Bauer Bros. Co. —
Beloit Iron Works Co. 19
Bird Machine Co. —
Bixby, R. W., Inc. —
Black Clawson Co. 6
Blaw-Knox Co. —
Bolton, John W., & Sons, Inc —
Bowser, Inc. —
Bowsher, N. P., Co. —
Brown Co. —
Buffalo Pumps, Inc. 49
Bulkley Dunton Processes, Inc.. —

C

Calgon, Inc. —
Cameron Machine Co. —
Carthage Machine Co. 36
Chemipulp Process, Inc. 42
Chicago Bridge & Iron Co. —
Chicago Eastern Illinois R. R. —
Ciba Company —
Cities Service —
Clark-Aiken Co. —
Classified Advertising 39
Clearing House 39
Clinton Foods, Inc. —
Columbia-Southern Chem. Corp. Sub. of Pittsburgh Plate Glass Co. —
Corn Products Sales Co. —
Cowles Co., Inc. —
Crane Co. —
Crucible Steel Corp. of America 4

D

Davis, Frank H., Co. 42
De Laval Steam Turbine Co. —
Denver Equiptment Co. —
DeZurik Shower Co. —
Diamond Alkali Co. —
Dietz Machine Works —
Dilts Machine Works 6
Dodge Manufacturing Co. —
Dow Chemical Co. —
Downingtown Mfg. Co. —
Draper Brothers Co. —
du Pont, E. I., de Nemours & Co. Aromatics Div. —
du Pont, E. I., de Nemours & Co. Dyestuffs Dept. —
du Pont, E. I., de Nemours & Co. Electrochemical Dept. —
du Pont, E. I., de Nemours & Co. Organic Chemicals Dept. —
Dusenbery, John, Co., Inc. —

E

Ebasco Services, Inc. —
Egan, Frank W., & Co. —
Elixman Paper Core Co. —
Elliott Co. —
Elwell Parker Elec. Co. —
English China Clays Sales Corp. —
Eriez Mfg. Co. —

F

Farrel-Birmingham Co., Inc. —
Ferguson, The H. K., Co. —
Fitchburg Screen Plate Co. —
Foxboro Co. 46

G

Geigy Co. —
General Dyestuff Corp. —
General Electric Co. —
Gibbs-Brower Co. 43
Gilbert & Nash —
Glidden Co. —
Goodyear Tire & Rubber Co. Back Cover
Goodrich Co., B. F. —
Goslin-Birmingham Mfg. Co. —
Gottesman & Co. —
Grinnell Co., Inc. —
Gulf Oil Co. —
Gurley, W. & L. E. —

H

Hall, Thomas W., Co., Inc. 40
Hamblet Machine Co. —
Hanchett Mfg Co. —
Harbison-Walker Refractories. —
Hardinge Co., Inc. —
Hart-Moisture-Meters —
Hayden Wire Works —
Heinrich, H. H., Co. —
Hercules Powder Co. —
Hermann Manfg. Co. —
Heyden Chemical Co. —
Holyoke Machine Co. —
Hooker Electro chemical Co. 33
Huber, J. M., Corp. —
Hubinger Co., The —
Hudson-Sharp Machine Co. —
Hungerford & Terry, Inc. —
Huyck, F. C., & Sons —

I

Improved Machinery, Inc. —
Ingersoll Rand Co. —
Insulmastic Corp. of America —
International Nickel Co. —
International Wire Works —

J

Jackson & Church Co. —
Jeffrey Mfg. Co. —
Jenkins Brothers —
Jenkins, M. W., Sons, Inc. —
Johnson Corp., The —
Johnson, Alvin H., & Co. —
Jones, E. D., & Sons Co. —

K

Kalamazoo Sheet Metal & Mfg. Co. —
Kinsley Chemical Co. —
Knox Woolen Co. —
Koppers Co., Inc. —

L

Langston, Samuel M., Co. —
Leffel, James, & Co. 15
Lindsay Wire Weaving Co. —
Link Belt Co. —
Lobdell United Co. —
Lockport Felt Co. —
Lodding Engineering Co. —
Lukens Steel Co. 53
Lyddon & Co. 37

M

Magnus Metal Corp. —
Main, Charles T., Inc. 38
Manchester Machine Co. —
Mead Sales, Inc. —
Mead Board Sales, Inc. 49
Meincke & Son —
Mercer Paper Tube Co. 38
Merrick Scale Co. —
Michigan Steel Casting Co. 36
Midwest Fulton Machine Co. —
Mixing Equipment Co. —
Monsanto Chemical Co. —
Moore & White Co. 8
Moorhead Electrical Machinery —
Morden Machines Co. —
Moringstar, Nicol Inc. —
Mount Hope Machinery Co. —
Mundt, Charles, & sons 3
Murray, D. J., Mfg. Co. —

N

Nash Engineering Co. 35
National Aluminate Corp. —
National Starch Products, Inc. —
National Tube Co. —
Naylor Pipe Co. —
Neff & Fry Co. —
Niagara Alkali Co. —
Nichols Engrg. & Research Co. —
Nopco Chemical Co. —
Nordstrom Valve Div. of Rockwell Mfg. Co. —
Norton Co. —

O

O'Donoghue, Roderick —
Ontario Paper Co. —
Osborne Paper Mill Equipment Corp. 43
Oldbury Electric Chem. Co. —
Owen Bucket Co. —

P

Pandia, Inc. —
Parsons & Whittemore 37
Peabody Engineering Co. —
Perkins, B. F., & Sons Co. —
Perkins, Goodwin Co. —
Pioneer Paper Stock Co. —
Pittsburgh Piping & Equip. Co. —
Poirier Control Co. —
Powell, William, Co. —
Price & Pierce, Ltd. 46
Pulp & Paper Trading Co. —
Pusey & Jones Corp., The —

R

Railway Supply & Mfg. Co. 11
Raymond, Chas. P., Service, Inc. 39
Record Fdy. & Machine Co. 44
Red Ray Manufacturing Co., Inc. —
Reichhold Chemicals, Inc. —
Reliance Elec. & Engrg. Co. —
Research Corp. —
Restigouche Co., Ltd. —
Rice Barton Corp. —
Reidel, Gus, & Son —
Rockwell Mfg. Co. —
Rogers, S. C., & Co. —
Roosevelt Paper Co. —
Roots-Connersville Blower Co. —
Ross, J. J., Co. —
Ross Paper Machinery Co. 41
Rust Engineering Co. —

S

Sandusky Fdy. & Mch. Co. —
Sandy Hill Iron & Brass Works —
Seaboard Air Line R. R. Co. —
Shartle Bros. Machine Co. 6
Sheffield Chemical Co. —
Shuler & Benninghofen —
Simonds Saw & Steel Co. —
Sinclair Refining Co. —
Sirrine, J. E., Co. 42
Smidth, F. L., & Co. —
Smith, A. O., Corp. —
Smith & Winchester Mfg. Co. —
Socony Vacuum Oil Co., Inc. —
Sonoco Products Co. —
St. Regis Paper Co. —
Sun Oil Co. —
Sutherland Refiner Corp. —
Swenson Evaporator Co. Front Cover

T

Taylor Instrument Cos. 2
Taylor Stiles & Co. 36
Tennessee Coal, Iron & R. R. Co. —
Testing Machines, Inc. —
Texas Co., The —
Texas Gulf Sulphur Co. —
Thiele Kaolin Co. —
Thomas Paper Stock Co. 44
Thwing-Albert Instrument Co. —
Timken Roller Bearing Co. —
Titanium Pigment Corp. —
Torrington Co. 23
Tracerlab, Inc. 47
Towmotor Corp. —

U

United Carbon Co., Inc. 48
United States Steel Export Co. —
United States Steel Supply Co. —
U. S. Rubber Co. —
U. S. Steel Co. —

V

Valley Iron Works Co. —
Vanderbilt, R. T., Co. —
Virginia Smelting Co. 45

W

Waldron, John, Corp. —
Walworth Co. —
Warren Steam Pump Co. —
Waterbury Felt Co. —
Weber, H. G., & Co., Inc. —
Wellman Engineering Co. —
Westinghouse Electric Corp. —
West Virginia Pulp & Paper Co. 48
Weyerhaeuser Timber Co. —
Whiting Corp. Front Cover
Williams Gray Co. —
Wisconsin Wire Works —
Wyandotte Chemicals Corp. —



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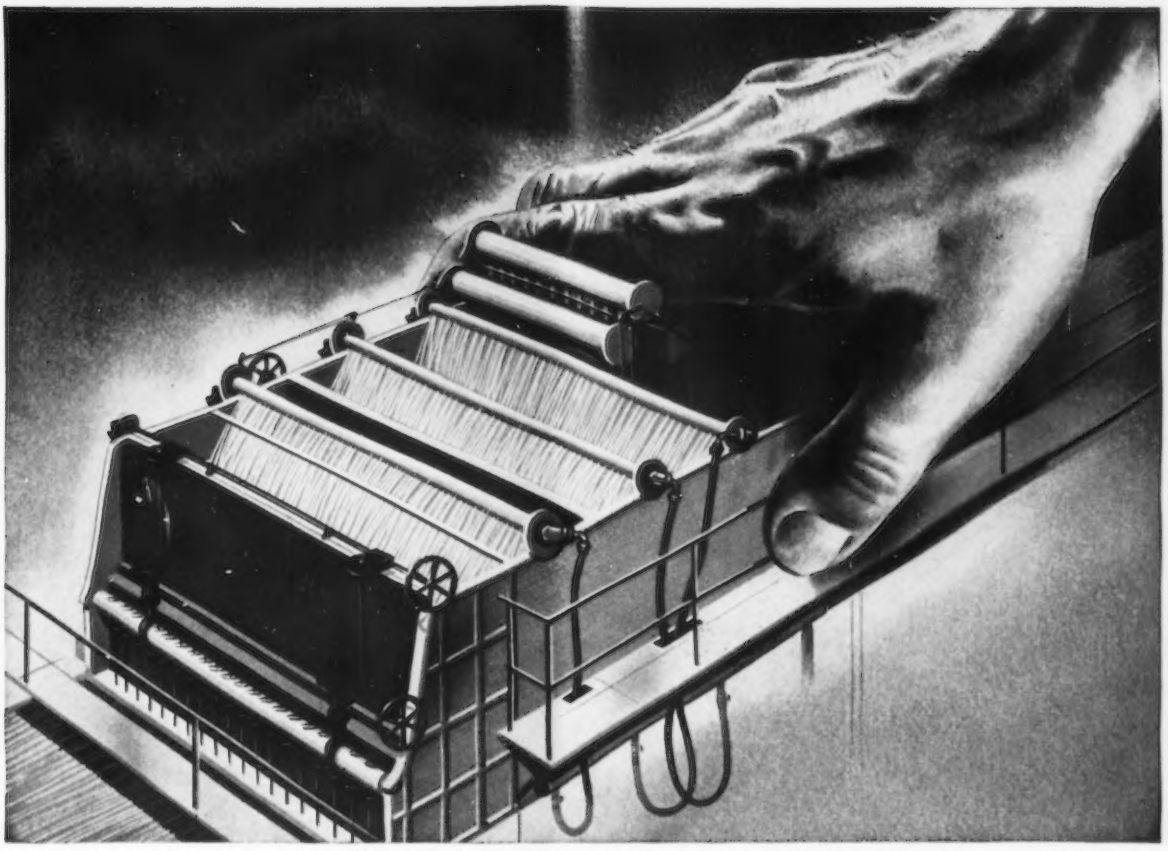

# How to Get a Grip on Slippery Efficiency

When production problems start slipping through your fingers, try the *new* approach, as this company did.

Their problem was a headbox. Every headbox used before had had an extremely short life. The quality of Kraft produced for wrapping paper and shopping bags varied considerably, and maintenance costs were too high to allow real production efficiency.

Finally, a new stainless-clad steel headbox was designed. To distribute stock more uniformly, flow lines were modified and pressurized flow was added. To eliminate flocculation caused by the collection of fibers, stainless baffles were welded in, not bolted. Thickened areas and holes in the sheet—the result of blistering that occurred with a plastic-lined box—were prevented by using clad steel. And liquid cannot get behind the cladding to cause rust spots—the problem encountered when an unbonded metallic lined box was used. Smooth, curved interiors and ground welds minimize sticking and sliming. The headbox is easy to clean, stays clean longer, should last forever.

Where do you get solutions like this? This company went to a progressive Equipment Builder, who in turn worked with specialists in design, engineering and materials. We know builders who make such coordination a practice. They come to Lukens regularly to confer with us about materials, for our wide range of low-cost clad steels.

We'll gladly send you names of builders like these if you'll write us about your need. Manager, Marketing Service, 103 Lukens Building, Coatesville, Pennsylvania.

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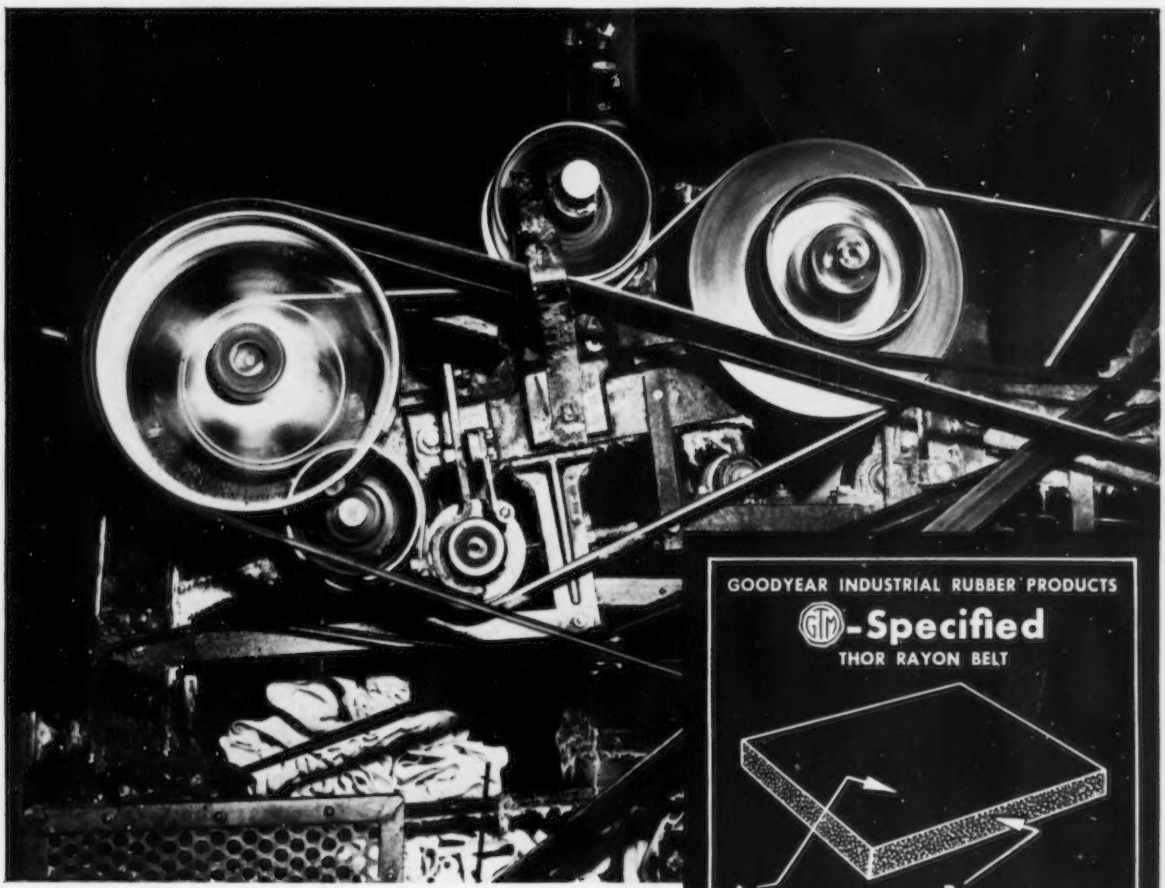
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